The Builder.

No. CCCCXXVI.

SATURDAY, APRIL 5, 1851.

WE find, as others have found before us, that when, seeking to be just and honest, we strive to keep the medium way, we seldom please either party. Those who are not disposed to be

> "By the vulgar foolish throng
> Both detained and dragged along;
> After things just born to die,
> Made to join the common cry,"

must look for sympathy and support from within, not without. If A. and B. squabble, the friend who says that neither is wholly right gets no thanks from either, and may have abuse from both. This has been our position on more occasions than one, and is so now in the matter of the great Building in Hyde-park, erroneously and foolishly called the "Crystal Palace."

We have spoken our mind about it on many points, perhaps not without some good effect. We object to and reprobate the fulsome panegyrics that have been lavished upon it, and the almost daily reports of its progress throughout the press, while St. Paul's or Westminster Abbey might have grown up unnoted,—praise which will cause our foreign neighbours to expect much more than they ought, and will lead hereafter, by reaction, to condemnation where it is undeserved. While we have done this, however, we have refused to admit into our pages the statements of those who can find in it subject only for abuse; and the consequence is that while on one hand we are regarded by some, who are personally interested in the matter, as not having a good feeling towards the Building or its builders, we are scolded on the other hand for not being sufficiently "bold" to speak the truth. During the past fortnight some correspondents of the latter bent have been indignant because we did not at once join in the cry of "a failure," when it was found that the roof was not water-tight; and to these, by the way, we will quote, in parenthesis, a remark of Boyle, who says, "Manage disputes with civility; whence some readers will be assisted to discern a difference betwixt bluntness of speech and strength of reason."

We sincerely hope that the fears entertained as to the admission of water are exaggerated, and that the evil will not be found considerable. Much of the wet which caused alarm was admitted through broken panes of glass, of which there were, when last counted, not less than 2,000. The action of the wind on two or three occasions produced very curious phenomena, and has led to the introduction of additional ties to prevent a recurrence of the damage to the glass which resulted. The cause of leakage in other parts has been traced to wilful stoppage of the drain-pipes.* The contractors express themselves satisfied that they will be able to make the whole water-tight; and there does not seem to be any reason to the contrary for the time during which the Exhibition will be open, especially as the glass is to be covered with linen, which may be made waterproof. Permanently water-tight, unless altered, as it seems to us, it cannot be. All who have had to do with skylights on the smallest scale, know the difficulty with which water is kept from entering through them; but beyond this, which is general, there is here this particular fact that the gutters, about which so much, too much, has been said, are simply hollowed beams of wood, and must in a short time warp and crack. It is quite unnecessary, however, to raise any alarm on the subject,—at all events, until the known causes are removed and the work finished.

When we visited the building a few days ago, the neighbourhood was the scene of great activity, consequent on at least half-a-mile of carts and other conveyances bearing the goods to the building. Within all was bustle, and not without occasion. The Commissioners have announced their determination to open on the 1st of May, and the amount of work yet to be done is enormous. Were it not that every man is directing his own business, and that on Monday there will probably be *ten thousand persons* at work in the building labouring to this end, it might be pronounced impossible: giving this, however, the fullest consideration, it still seems to us very improbable. Mr. Cole, Mr. Dilke, and others are labouring indefatigably, and all that can be done will be. It is to be hoped that no efforts will be wanting on the part of exhibitors.

The painting is now nearly finished, and the colouring resolves itself practically into blue and white: the red does not come into sight at all, except that when looking up, the underside of the girder is brought by its means heavily to the eye. Those who at a distance have read the discussion the original proposal produced,—noted the pother it made, the principles that were evoked, and theories that were proposed,—will smile incredulously at the agreeable, harmless, but mistaken reality.*

The outside of the building is also blue and white; the boarding of the lower story stained and varnished as oak.

The part devoted to machinery is already full of interest: the cotton machinery will be very complete; the enormous hydraulic press used for raising the tubes of the Britannia Bridge is in its place; the permanent railway is being laid; and on all hands hammers are clanging with a will. Down the centre of the nave will be a range of single important works, trophies, so to speak, of various departments; such as a lighthouse, the iron dome mentioned by us last week, a large fountain by Seeley, in artificial stone, a piece of statuary, and other similar striking features. On one side, men are busily employed building a cottage of hollow bricks, and, near it, others are setting up specimens of Lord Lovelace's moulded brickwork, in the shape of chimney-shafts and other prominent features. Outside the building, at the west end, the engine-house is being erected, and will contain power equal to 100 horses. In the space of ground between this and the building will be deposited various specimens of "raw material," for which room cannot be found inside, such as a monster block of coal and the like.

We have received some scores of invitations to inspect works that are about to be forwarded to the Exhibition, but, with some few exceptions, have found it necessary to decline doing so until they are in their places. Amongst those of which we have information may be mentioned a brick machine with double screw press and perpetual cutter, adapted for making Randell and Saunders's patent bricks for sewerage purposes, which give a drain of greater strength than the common pipe or brick sewers, at a less cost; also building bricks, and all descriptions of tile and pipe ware. The machine occupies a space 12 feet by 4, and can be placed under the pug mill, or the clay may be thrown into it in any other way deemed desirable. The clay falls on two screws working into one another, which drive the clay out at the further end of the cylinder, giving it in its transit great compression, so that the bricks are delivered through the dies in a very firm and solid state. On leaving the dies they pass under a perpetual cutter, which works without checking the progress of the clay, severing the bricks or tiles at any required lengths, giving joints either square, angular, circular, or any segment of plain joints or tongues and grooves,—in fact, giving the ends of the bricks or tiles the form required. Two men and one lad, with the machine working at little over one-horse power, produce, it is said, 1,000 bricks per hour. On inquiry we were told that to work the machine ten hours costs—

	s.	d.
Two men, say	6	0
One lad	1	0
Two horses	8	0
Total cost per 10,000 bricks	15	0

The same parties will exhibit a sawing-machine for cutting stone from the bed. The model will be shown in operation in a stone model representing one of the headings in Corsham Down Quarry: it works eight saws, which, in the original machine, are 24 feet long. By a simple arrangement each saw is allowed an action quite independent of the others, and can be worked at any angle which may be required. In case of any impediment, it is arranged for either saw to stop before it is strained, and without interfering with the action of the others. This machine does the work of seventy men. When the stone is cut out into blocks it is removed by a traversing crane, worked by the same ropes which work the saw frame, and both are driven by steam power.

We hear, too, of a machine which is to prove of great importance to the art of printing: its purpose is composing and distributing printing-types quickly and cheaply. It differs, they say, in mechanism from all previous attempts at realizing this improvement in printing. The machine provides for the distribution as well as the composition of the types; and a small compass contains the case and 64,000 letters,

* Along a row of columns on the south side next the transept there was observed to be a constant leakage when rain fell, from some cause which could not be detected. At last they were induced to examine the line of drain-pipes which runs from column to column, and there they discovered a nail-bag securely wedged in by some mischievously-disposed workman, and which, by stopping the current of water, of course caused the columns to overflow.

* A correspondent, from whom we inserted some remarks on this subject, says,—"If, Sir, you should go into the Hyde Park Building, and, standing near the large organ, should happen to look down one of the aisle galleries, you will see an extraordinary effect of decorative colour: the effect of the blue in the distance is quite astonishing. If you go into the next gallery, the effect is the same, and so on to the next, all round, and all over the building. But if, instead of this beautiful monotony, *each aisle had been a different colour*, we should have seen *seven* astonishing effects instead of *one*,—red, orange, yellow, green, blue, purple, and violet; and then standing in the nave, and looking into the far distance, we should have seen all these seven wonderful effects blended into one harmonious whole, to astonish the world. Mr. Jones has held one palette, I should have held seven.—C. B. A." Our own opinion remains unchanged: it should have been treated as metal, and not painted to look like wood.

for a compositor's day's work. By an ingenious arrangement the workman can compose four different characters, Roman or Italic, without moving from his place.

Mr. Hammersley, of the Manchester School of Design, has a large picture illustrative of the principles by which the forms of nature are adapted to the purposes of the designer of textile fabrics and other flat surfaces. The work is in oil, and covers a surface of 195 square feet. The details, we are told, comprise a large oval centre, surrounded by a broad border, and occupied by a composition of fruit and flowers, painted in natural hues; a few accessories, harmonising in colour and character, filling in the remainder of the space. Around that centre there are drawn a series of geometrical forms, produced by circles intersecting each other at various points; and each space between two or more lines is occupied by some natural form adapted to the purposes of the designer for textile fabric; in each space a fresh design, and 237 in the aggregate.

Mr. Armytage and Mr. Corbould exhibit pictures as specimens of new mediums. The "Mediæval Court" where Messrs. Pugin, Hardman, Crace, Minton, and others, will co-operate to produce a homogeneous whole, is getting into shape. The foreign exhibitors will have an advantage in the arrangement of their stands, inasmuch as the works of each country may be placed so as best to assist each other; while, in the British department, the exhibitors will be unable to control their immediate neighbours. There will be no lack of organs and other musical instruments, some of which, we hope, will be brought into play. It is calculated that the total number of exhibitors will be about 15,000.*

We were sorry to see the Sappers employed in giving the admission tickets, and other matters of arrangement. The absence of the military on such occasions in England is as characteristic as their presence abroad, and it seems to us very undesirable, thus practically to contradict the impression which our continental neighbours correctly hold in this respect. The office with the red-coats and their officers occupying the desks (intelligent and efficient as they seem to be) certainly does not look English. At all events, we trust the executive will let them put on plain clothes, *pro tempore*.

The number of foreigners in London is already very noticeable in the streets. And we may here take the opportunity of replying, in a matter which arises out of this fact, to some of our correspondents, who seem to think that we are bound not merely to know every thing but to let them know it too. We can satisfy them that *Ici on parle Français* is perfectly correct French, and that the placards in our shop windows need not be altered to "Ici *l'on* parle Français." The authorities say that the words after which *l'on* should be used rather than *on* are *et, si, ou, que,* and *qui*. It must not be concluded from this that *Ici l'on* may not be written: we may use either mode, according to whether the verb which follows begins with a vowel or a consonant. It would be properly employed, for example, in the following inscription (for a cemetery), *Ici l'on est égaux*. We repeat, however, that *Ici on parle Français* is perfectly correct.

The formation of the *juries* by whom the prizes are to be awarded is a matter of considerable importance. The commissioners have determined that there shall be one jury to each of the thirty classes into which the Exhibition is divided. They have given to each class a jury varying in number from six to twelve, and making in the aggregate 270. Half of these are to be foreigners: and the commissioners have called upon the metropolitan committees, and the committees of those towns which exhibit to any considerable extent in any of the classes, to send a limited list of names of persons qualified and willing to act as jurors in the respective departments to which their position and knowledge recommend them. The commissioners say in their letter,—"As the satisfactory discharge of the duty of a juror in an International Exhibition involves the exercise of great practical skill, it is requested that you will represent to your committee the necessity of recommending persons who may obtain the confidence of the public." From these the commissioners will then select.

In the metropolitan section of Fine Arts the persons recommended are,—the chairman, Sir Moses Montefiore; the deputy chairman, Professor Cockerell, R.A.; Lord Ashburton, Mr. Alderman Salomons, Mr. Wyon, R.A., and Mr. Weekes.

In class 27, manufactures in mineral substances, used for building or decoration, Mr. W. Tite, Mr. Bunning, and Mr. George Godwin have been named: and in class 7 the jurors recommended are,—for civil engineering contrivances, Mr. W. Tierney Clark and Mr. Edwin Clark; for architectural and building contrivances, Mr. C. Fowler, and Mr. J. J. Scoles. The duties of the juries will demand much time and attention.

* One of the exhibitors, Mr. M'Lachlan, decorator, had a specimen of arabesque colours on glass destroyed by the wind driving it off the van.——A proposed exhibitor of parquet panels, for flooring, complains of the refusal of space. As we gather from his letter, however, that the local commissioners were not allowed to see his specimens when they called, he has only himself to blame in the matter.——Mr. Caldecott, of Bloomsbury, exhibits a fine specimen of English oak, in the shape of an elegant sideboard.——Mr. Harrison has submitted to us a handsome worked altar-cloth.——As to the advertised auxiliary Exhibition building, there is no satisfactory information to be obtained.

CAUSES AND CURE OF SMOKY CHIMNEYS.*

Deficient Supply of Air.—We have seen that the primary cause of action in chimneys is the rarefaction of air, which brings into operation the principle of gravitation: *i. e.*, the column of air in the chimney being rendered lighter by rarefaction, the column of external air presses it upward at its base. A portion of this external air enters into the chimney at each instant of time with the smoke or gas from the fire, mixes with and becomes rarefied by it, and passes off into the atmosphere with it. Now, as fire-grates have been heretofore and are still constructed, it is an indispensable condition, that a certain portion of air *must* enter the chimney in this way in order to produce a sufficient current to carry off the large quantities of unconsumed carbonaceous matter, or smoke, which is generated. For although this smoke, as we have seen at page 530, vol. viii., is much lighter than atmospheric air and will naturally rise through it, it has also a natural tendency, in common with all gases, to diffuse itself to a certain extent in every direction; and therefore, although the bulk of the evolving gas from a fire in a perfectly close or air-tight room, would ascend the chimney by reason of its superior lightness, a portion of it would diffuse itself through the atmosphere of the room, or, in household parlance, the room would be "filled with smoke." To counteract this tendency a current of atmospheric air is necessary, of sufficient volume and velocity to absorb and carry off the smoke or gas as quickly as the fire can generate it.

* See p. 69, *ante*.

The process of combustion also requires a constant supply of atmospheric air, as it is the oxygen contained in it which supports fire. Here then we have two distinct demands for a supply of *unrarefied* atmospheric air.

An ordinary fire-grate with a 9-inch flue, and consuming about 28 lbs. of coal per diem, requires a constant supply of from 30 to 40 cubic feet of air per minute to supply the two demands above named, *i. e.* the current or "draught" of the chimney and the process of combustion. It matters not what may be the size or cubic contents of the room, whether 1,000 or 10,000 cubic feet, the requirements as regards a fire of the above proportions remain the same; and unless there be apertures or crevices sufficient to admit this quantity of air, the current in the chimney is impaired and the chimney "smokes." It is a most significant indication of the extent to which our present subject is understood amongst practical men, that even in dwelling-houses of the present day, as a general rule, chimneys are left to fortuitous circumstances for this essential supply of the means of proper action; and the air which ought to be admitted from the external atmosphere by proper inlet channels, equal in capacity to the outlet channel (*i.e.* the chimney), is compelled to make its way to the fire-grate through keyholes and crevices, or round doors and windows, and hence we hear of "draughty rooms," and we are constantly being warned by considerate friends against sitting in the "draught of the window" or the "draught of the door," as the case may be. Should these "draughts" be stopped by such familar appliances as listing, sandbags, &c., we find that the chimney "smokes," and forthwith the "chimney doctor" is sent for to affix all manner of fantastic caps and cowls, and also to try sundry lengthenings and shortenings of zinc tubes at the *top* of the chimney; whereas the disorder lies at the *bottom*, in the want of a proper and sufficient supply of unrarefied air to the fire-grate.

If proof were needed that this supply of atmospheric air is essential to the proper action of chimneys, it would only be necessary to direct attention to the innumerable chimneys that "smoke unless the door or window be set a little open;" or that "always smoke at first lighting," but cease to do so after several hours' firing. In the former case the crevices of the doors and windows before alluded to are altogether too small to admit a sufficient quantity of air at the requisite velocity; and in the latter case these crevices are large enough after the fire has had time to produce a high degree of rarefaction in the chimney, but not before. This will be obvious from the following reasoning, viz., when a fire is first lighted, its power of rarefaction is small, and the current or "draught" which it creates in the chimney is weak and sluggish, and is therefore unable to carry off the smoke with sufficient rapidity; but as the fire increases its power of rarefaction is increased also, and a greater difference is produced between the weight of the column of air in the chimney and that outside, and the velocity of the current is thereby increased. But the difference produced between the internal and the external columns of air by this rarefaction, as regards their relation to each other, amounts to a virtual increase of the pressure of the latter; and as the pressure of a fluid issuing through an orifice is increased, its velocity is increased also in certain proportions; and it therefore follows, that the velocity of the air entering through the crevices before mentioned, is increased as the rarefaction increases, until it arrives at an extent equal to the demand for the proper action of the chimney.

In support of this reasoning we may adduce a fact which is patent to all who have been plagued with "draughty rooms," viz., that when the fire is most powerful, the draughts are strongest. We may here remark that the remedy for this particular cause of "smoky chimneys" would also prove an effectual remedy for "draughty rooms," as all the draughts might be stopped with perfect impunity. Of this remedy we will have to speak in a future paper, and will now pass on to describe the third "cause" on our list.

The Action of Winds.—This is a fruitful source of annoyance, and one which of all others is the least controllable by man. We find it operating in two distinct ways;—first, by strong winds passing horizontally across the top of the chimney; and, secondly, by winds meeting with some object to interfere with their direction in the immediate vicinity of the faulty chimney.

In the first case the wind acts almost as a valve upon the top of the chimney, and produces a stoppage of the current or "draught" passing out of it. We will endeavour to explain this action with the aid of diagrams as follows:—Let A, fig. 10, represent the section of a chimney-top with a current of smoke passing upwards through it in the direction of the arrow *a*, and let B represent a strong wind blowing directly across the top of the chimney in the direction of the arrow *b*. We will take the ascending force of the current in the chimney, which of course varies according to length of chimney, degree of rarefaction, and other circumstances, to be 2-100th parts of 1 lb. per square foot, and the horizontal force of the wind to be 10 lbs. per square foot. The science of dynamics teaches us that where two equal forces are acting at right angles and converging to the same point, they will at that point, being the point of contact, diverge equally from their original directions as shown at fig. 11, where A and B represent respectively the two forces. We find also that should these two forces be unequal, the greater will overpower the less, and the angles of divergence from their original direction will be least in that of the greater, and most in that of the least force; and hence we find that there are proportions in which the larger force would so far neutralize the less as to render its effect at the point of contact imperceptible. Thus, suppose two balls, A and B, fig. 12, proceeding at right angles in the directions of the dotted lines *a* and *b*, the momentum of B being represented by 500, and that of A by 1, at the point of contact A would only cause B to diverge from its direction 1-500th part of a right angle. Now the numbers 500 and 1 are the exact proportionals of the forces of a strong wind and the ascending force of a column of smoke in a chimney respectively, and therefore the column in a chimney can only exert a force against the wind capable of altering its direction 1-500th part of a right angle; or, in other words, it can only make room for its exit on the leeward side of the chimney by causing the direction of the wind at the plane of the chimney-top to assume an angle of 18-100th parts of a degree with that plane; an angle which is so small as scarcely to be perceptible in a distance equal to the width of an ordinary chimney-top, and such as would scarcely give 1 square inch area of free outlet for the smoke. A strong wind blowing horizontally across the top of a chimney acts as a valve in the way described, by virtually reducing the area of the chimney, and thereby causes the smoke to back into the room to which the chimney belongs until it gets vent again by the cessation of the blast.

Fig. 10.

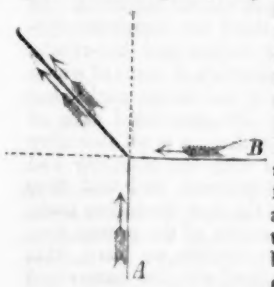


Fig. 11.

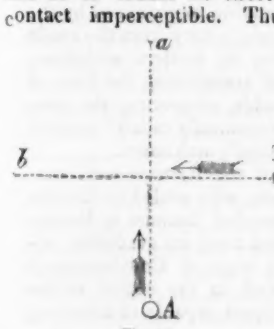


Fig. 12.

When "smoky chimneys" result from winds coming in contact with some adjacent object, they will invariably be found to "smoke" when some particular wind prevails; the immediate cause being either another chimney, a building, a wall, a tree, or clump of trees, standing higher than the top of the faulty chimney, on either its leeward or windward side. In either case, an eddy is formed which receives a direction opposite to that of the ascending column of smoke, and which possesses sufficient force to overpower it, and check its progress whilst the eddy lasts. In order more clearly to explain this peculiar action of wind, let A, fig. 13, represent a wall;

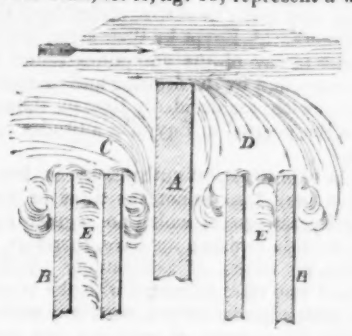


Fig. 13.

B B, sections of the tops of two chimneys; C, an eddy formed on the windward side; D, another on the leeward side of the wall by the wind blowing against it in the direction of the arrow; and E E, the columns of smoke in the chimneys, checked in their ascent. Suppose the arrow to indicate an easterly direction, and it will be obvious that the two chimneys represented would only prove defective from this cause in an east or west wind, or in winds approaching either east or west. TBA.

ON THE MECHANICAL PROCESSES OF SCULPTURE.*

THE great patriarch of architectural literature, Vitruvius, has named so many subjects requisite to be understood by the architect, that, according to his statement, it would be difficult to say what branches of learning the latter might leave unstudied, without being considered imperfectly educated for his profession. It is also stated in the address contained in the first part of the first volume of the Transactions of this Institute, that "architecture embraces the whole circle of the sciences." Taking these two passages into account, together with the titles of many papers which have been read at these meetings, and which, to a common observer, might at first appear to be but little connected with the profession, I have been induced to consider, that a short description of the mechanical processes of sculpture might be interesting.

Decorations of various kinds, composed of raffled foliage, festoons of fruit and flowers, Corinthian capitals, together with nearly all ornaments derived from the vegetable kingdom, may generally be very well executed from drawings by clever carvers, without the aid of mechanical instruments and contrivances, such as I propose to explain. But if the ornaments consist of trophies, human figures, or inferior animals, bas-reliefs, or insulated statues, including heraldry of large dimensions, they will probably appear like an incumbrance to the edifice instead of an ornamental feature, notwithstanding they may have been well designed and modelled by a very talented artist, unless they are well copied, and the proportions are correctly preserved; and such accuracy in copying the proportions can only be attained by taking points, measured from certain parts of the surface of the model, and transferring them to the stone, in imitation of what was done to produce, in marble, the sublime conceptions of Flaxman or Canova.

It is quite possible to introduce sculpture into an architectural design without reference to its proper adaptation, and it may be out of place, or out of proportion to the size of the building, when it will be a disfigurement rather than an embellishment; but if it be judiciously introduced, so as to form an integral part of the entire composition, and to convey to an intelligent beholder the idea, that if it were removed the building would be incomplete, I think you will all agree that it gives to a fabric refinement and finish of no common kind: in the one case, it may appear like the ostentatious display of a wealthy nobody; in the other case, it can scarcely fail to convey to the discriminating mind of a well-informed observer the impression, that the entire edifice, including its sculptural decorations, is the design of a highly educated artist.

In Mediæval art, it is almost impossible to separate the department of sculpture from that of architecture, of which it has always formed the most ornamental feature, more particularly in the style which prevailed during the fourteenth and fifteenth centuries. Few persons, except those who have paid attention to the subject, can imagine while they contemplate a venerable Gothic structure, how much beauty and refinement it has lost by the destruction of its statues and ornamental carvings. The pedestals and acroteria of a Greek or Roman façade may be left without statues: even the pediment may remain unadorned with sculpture, and the greater number of observers would not be struck with its plain or unfinished appearance; but a rich screen, or the lady chapel of a cathedral, with a number of vacant niches and canopies, is somewhat analagous to a splendid apartment, on the walls of which are suspended handsomely carved frames for full-length portraits, without the pictures.

Before I describe the instruments and models, I will endeavour to give a short account of the historical part of my subject.

It is quite uncertain at what period of history the art of hewing blocks of wood or stone into the resemblance of men and other animals was first attempted; but there is unequivocal proof of its having been practised during the most remote antiquity. The sacred writings, and other early records, contain numerous passages alluding to images of living creatures. Human nature, in the first stages of society, is generally guided by the same kind of necessity in all countries, and men have supplied the want of alphabetic characters to communicate their ideas to each other, by emblems or representations of existing objects, which, in the progress of civilization and knowledge, gradually improved into the hieroglyphics of the Egyptians and other primitive nations.

Although sculptured writing was probably the first employment of the statuary, idolatrous worship contributed in a much greater degree to carry the art to that perfection which it attained in some of the nations of antiquity; and as the Chaldæans are recorded to have been the first idolaters, the presumption is that they were also the first people who practised the art of sculpture: their early progress in the manufacture of idols is confirmed by the united testimonies of many ancient writings, both sacred and profane.

Various authentic passages may be found among the Greek poets, as well as in the Scriptures, which incline us to believe that the Phœnicians approached nearer to perfection in the fine arts than any other nation anterior to the Greeks. A confirmation of the advances made in architecture and sculpture by the inhabitants of the coast of Phœnicia, is afforded in many parts of the sacred writings: in the book of Joshua frequent mention is made of "great Sidon," and "the strong city of Tyre," expressions sufficient to prove that these cities had risen to considerable importance as early as 1450 years B.C. Another part of the Scriptures states that Hiram, King of Tyre, sent different artisans to David, King of Israel, to build him a house or palace, about 1050 years B.C. Afterwards, Solomon, preparatory to beginning the temple, engaged with Hiram, King of Tyre, to send him workmen. He also requested Hiram to send him a man capable of working in the different kinds of metal, to make the images and decorative parts of the temple. In compliance with this request,

* The following paper, by Mr. C. H. Smith, was read at the ordinary general meeting of the Royal Institute of British Architects, March 24th.

Hiram sent "a cunning man of Tyre, endued with understanding, skilful to work in gold, silver, brass, iron, stone, and timber; in purple, blue, crimson, and in fine linen; also to grave any manner of graving, and to find out every device which might be put to him." Solomon must have been well acquainted with the state of the arts in Egypt, before he began to build the temple at Jerusalem, his first wife being the King of Egypt's daughter. From his intimate connection with that country, very little doubt can therefore be entertained that he would have sent for Egyptian artists to execute the principal parts of that edifice, in which no expense was spared to make it the most perfect work in the world, had their fame or talents been reputed equal to the Tyrians. We have also the additional testimony of Homer, from whose expressions the wealth and magnificence of the Sidonians and Tyrians are apparent, as he thought it a sufficient recommendation of any work of art that it was Sidonian.

Many great cities of Asia are mentioned by the Hebrew prophets, especially Isaiah and Ezekiel, as flourishing in their time in power, riches, and magnificence, where the art of sculpture was practised on a prodigious scale; but all historical record of most of those brilliant empires which were once the seats of art and science, is almost entirely without corroborative evidence from remaining monuments, except the recent discoveries by Dr. Layard of the Nimroud sculptures, now in the British Museum, which are of the highest interest to the antiquary.

Had the materials employed for the colossal statues at Babylon, Nineveh, and the cities in the land of Shinar, been granite, marble, or good common stone, instead of gold, silver, or bronze, we should still, doubtless, with regard to mass, have had fragments worthy to be compared with those of Upper Egypt; but it must be recollected that the latter part of the period we are now contemplating is distant at least 2,500 years, since which, the dominion of the south-western districts of Asia has been successively under the control of Assyrians, Medes, Persians, Greeks, Romans, Saracens, and Turks, all of whom carried off whatever they found of most intrinsic value.

Of all the countries which have been inhabited by man, Egypt possesses the most colossal, and probably the most ancient, work of sculpture. There the remains of long-departed grandeur display themselves in melancholy state, as if to defy further injuries of time. The first attempts at sculpture in all nations have generally been made in wood, but as that article is known to have been proverbially scarce in Egypt, the soft sand-stone, which they had in abundance, presented itself as the material best suited to their purpose; and it is reasonable to suppose that the tools first used were no other than the sharp edges of broken flints or hard stones. A visit to the British Museum will afford an idea of what may be accomplished in the art of carving with instruments of this description, in the figures of the South Sea idols.

There are some very large statues in Egypt wrought in granite, specimens of which are in the British Museum, but that hard material was not so much used by the Egyptians as is generally believed. Their largest statues were usually executed in sand-stone, and in many instances, without disturbing the rock from its natural situation.

The enormous statues of that country have struck every visitor with astonishment, and if we consider the time that must have been occupied in carving a figure 60 or 70 feet high in so hard and refractory a material as red granite, the boldest heart would be appalled at the incalculable labour and difficulties of the undertaking.

The Egyptian sculptors were never renowned for the excellence of their works of art, but simply for the extraordinary magnitude of them. An attentive examination of the Egyptian antiquities in the British Museum will show, that the form of their hands and feet is gross and ill-shaped, the want of anatomical knowledge remarkable, and that they are excessively deficient in grace and elegance of action. These observations are applicable only to the original native sculpture of the Egyptians, for after the time of the Ptolemies, their sculpture was enlivened by Grecian animation, and refined by Grecian beauty. Osiris, Isis, and Orus, their chief divinities, put on the Macedonian costume, and new deities arose among them in totally different attitudes and proportions, whose characteristics were compounded of the materials of Eastern and Grecian theology. Adrian caused a number of statues to be made, in imitation of the ancient Egyptian, for the purpose of decorating his magnificent villa at Tivoli, several of which have been found, and placed in the Capitoline Museum, where they are usually considered by the common observer as genuine Egyptian productions; but they may easily be distinguished from the original works of Egypt by their style, which is superior to any of the antiquities found in that country, and by the drawing and character of them, which are decidedly Roman, though they are represented in Egyptian attitudes and dresses.

It is in vain to expect authenticity in treating of a period so remote as three or four thousand years ago, of which no regular historical records remain: we have, therefore, at this time, no means of ascertaining whether the artists who were entrusted with the execution of such gigantic statues, used any contrivances for the purpose of attaining the most perfect imitation of the human form, answering to the present use of models, casts from nature, or machines for transferring correct proportions on an enlarged scale; or, if they did, what those contrivances were; nor can we tell how the excessive labour of carving them was divided between numerous hands, so as to ensure the completion of the work to their satisfaction: neither can we estimate with accuracy the mechanical knowledge possessed by the people engaged in those extraordinary works: it was in all probability very trifling; consequently the human labour employed must have been enormous in quantity, and exceedingly painful to the workmen; yet, with the application of the wealth and power possessed by a numerous and despotic priesthood, almost anything might be accomplished which depended principally on simple manual labour.

From Plutarch and Pausanias we learn, that the material of which the primitive Greeks made their statues was generally wood, and that the lower part of all their idols was not carved before the time of Dædalus, a native of Athens. He lived about 1,300 years B.C., and had a disciple of the name of Endæus: these two are the earliest sculptors in marble on record. From that time an interval of 500 years elapsed without any particular mention of works of art in Greece, except of those which Homer states to have been executed by the Sidonians. During this long period, the Greeks were almost constantly engaged in war; and we find the poets of those early ages, indulging in the reveries of a warm and luxuriant imagination, and singing, with the greatest enthusiasm, the history of the contests and expeditions of their ancestors; and these poetical productions gave to the artists the most exalted and sublime conceptions of divinity, heroism, grace, and beauty.

About 776 years B.C., two Cretan sculptors, Dipænus and Scyllis, were celebrated for their marble statues: some of the earliest specimens of Greek sculpture in the British Museum are supposed to be the productions of these artists, or of their immediate successors.

During the fifth and sixth centuries B.C., the number and comparative excellence of statuaries in the island of Ægina was very great: many of those artists are recorded as having produced very superior works, and there is scarcely a city described by Pausanias which did not contain some of them. The statues which adorned both pediments of the Temple of Jupiter Panhellenius, in that island, were discovered in the year 1812, buried in the ruins of the temple; they supply the most complete example of the school of Ægina, a style highly reputed by the authors of antiquity, as being of early celebrity in Greece, and also held in great estimation ever since. These marbles may be considered as fair average specimens of the first celebrated efforts of Greek sculptors, and although executed considerably prior to the meridian of art, are, nevertheless, far removed from its dawn.

From that time, arts, sciences, and literature, began to assume a more elevated character in Greece, and to make those rapid advances towards perfection, which not only left every other nation in a comparatively infant state, but appeared to preclude all further improvement. The most beautiful works of sculpture ever produced were executed by Greek artists, who lived about the middle of the fifth century B.C. The ancient historians, especially Pausanias and Pliny, have given us the names of many celebrated Greek statuaries, together with the dates of their principal works, and a vast fund of information connected with their buildings and sculptured decorations; but I have never been able to find a passage alluding directly or indirectly to their mode of practice, or their means of obtaining mechanical assistance. It is quite certain, that the talented artist, Phidias, could not have found time to execute with his own hands, all the statues and relievos which are ascribed to him; he must have put some ingenious mechanical apparatus into the hands of his pupils, or assistants, to have enabled them to perform the greater part of the violent bodily labour required to hew the blocks of marble into nearly their intended form; but in what manner that department of the profession was conducted, is now involved in impenetrable obscurity. Although we have not the direct evidence of history, to teach us the Greek method of carving statues, we are, nevertheless, particularly rich in relics of their abilities and industry in various materials. In the British Museum there are numerous specimens of terra-cotta statues and bas-reliefs, on the backs and undersides of some of which may be seen, not only the finger-marks, but the impression from the granulated skin of the fingers of the modeller; a proof that they were well acquainted with the plasticity and use of clay for such purpose, and that they used their fingers as the best modelling tools, as is the practice of artists of the present day. From Pliny and Theophrastus we learn, that they were also acquainted with the nature and use of the material now called plaster of Paris, and, on attentively examining the backs of some of the Elgin marbles, where the work is left in a rough state, we find evident marks of tools precisely such as are used by carvers and masons at this time. Thus it appears pretty certain, that the plan of producing a model, and of working the marble, as practised by the Greeks, did not materially vary from the mode of procedure adopted by modern sculptors; but their method of transferring the form of the model to the marble, answering the purpose of what is now technically called "getting the points," is now totally unknown.

The best works of the Romans were executed by Greek artists, who settled in the imperial city after Greece had become a Roman colony, and, from that time, art gradually declined, until, in the reign of Constantine, it was impossible to find in the capital of his mighty empire, a sculptor capable of adorning the new buildings.

From a complication of causes and events, arising out of the fanaticism of the age, literature and the fine arts generally, remained in a state of concealment or darkness for the long period of nearly a thousand years. To describe the numerous contests, maintained with unabated rage and various success between the worshippers and the destroyers of images, and the extraordinary changes of feeling with which the Christian world laboured alternately to adorn their magnificent edifices, and then to obliterate every trace of sculpture, would be lamentably curious, but such an investigation is foreign to the subject of this illustration.

In the fourteenth, fifteenth, and sixteenth centuries, there were sculptors in Italy who produced statues in marble superior to any that had been executed since the time of the Greeks. The late Mr. Flaxman considered that "some of the works of that period, both in bronze and marble, might be placed beside the best productions of ancient Greece without discredit."

About the middle of the fifteenth century, the first descriptive account of the process of carving statues from a model appeared in print, in the well-known book of Leon Battista Alberti, besides whom I am not aware that any other author has written on the subject of getting the points in sculpture.

Having read the paper containing the above observations, Mr. Smith proceeded to explain the process of forming a statue in marble, commencing with the first sketch by the artist in the plastic clay. The making of the full-sized model in clay, and forming from it a mould in plaster of Paris, in which a *fac simile* of the original would afterwards be cast in the last-named material, were then described. The hammer and tools used by the sculptor were also described; and attention was called to the excessive labour, and the length of time required, to fashion a large block of marble into the general shape of model, as well as to the extreme accuracy necessary, as any portion improperly removed could not be, by any means, replaced without occasioning a permanent blemish. The line of cleavage in the grain of the marble must consequently be carefully attended to by the workman, who might perform all the labour of roughing out the block by the mere aid of mechanical contrivances, without necessarily possessing any knowledge of the art.

Though sign and ship carvers might produce some strange representation, in stone or wood, without having previously formed a model in plaster, yet all sculptors of merit, worthy to be called artists, make use of a model. The notion, that Michelangelo and other sculptors of his time did not employ models to carve from, as modern artists do, but that they carved the block at once into the intended statue, was investigated, and great doubt expressed as to its correctness.

Alberti was the first to describe the method, still in use in Italy, for "getting the points" —*i. e.* transferring them from the model in plaster to the copy in marble—by means of the plumb-line and dial system, but he expressly mentioned it as a general and long-established practice. It was formerly used in all countries, and it is even now employed in Italy and France. [The practical application of the method was explained by Mr. Smith.] The elder Bacon was the first sculptor who departed from the old practice, and invented the scale stones, with the ball and socket apparatus, about the year 1764. In this method the graduated scale is fixed beneath the block to be carved, which, together with the model, is fixed firmly on a heavy mass of stone, side by side. An upright staff with cross-arms, on which the probe gauge for fixing the points is set, moves horizontally along the scale stones, and completes the machine. The simpler the instrument the better, as it is subject to rough usage, and is intrusted to the hands of people who are not always careful. Recent improvements in the machine were pointed out: such as making the standard round instead of square; fixing stops against which to push it, instead of a line; and turning the horizontal arm entirely out of the way of the workmen, when required. As transferring the points, or pointing very tall figures, is attended with much inconvenience and loss of time, in consequence of the vibration of the standard, besides occasioning inaccuracy in the head and bust, the most important portions of the figure, Mr. Smith had introduced the new method of using two graduated scales in the height, accurately adjusted to each other, by which means shorter and more stable standards can be used.

The disadvantage likely to arise from the use of models made to a scale considerably less than the carving to be executed from them, having been shown, he observed, in conclusion, that if sculpture be well designed and modelled, little need be done to it in the way of carving, after it has been correctly pointed, in order to ensure its due effect as an architectural feature, when applied at a height above the eye of the spectator.

Mr. Fowler, V.P., alluded to Mr. Smith's observation, that if works of art were intended to be durable, they should not be made of materials, such as bronze, which could be converted to other purposes, and said he had been informed that the Portuguese were in the habit of carving granite with great nicety and beautiful effect. He fully concurred in Mr. Smith's objection to the use of valuable materials for sculpture; and, besides the intrinsic value of bronze, he considered that material highly objectionable, in this climate especially, on account of the obscurity arising from its very dark colour. He believed Mr. Smith had proposed to execute the capital of the Nelson column in stone? (Mr. Smith assented.) He (Mr. Fowler) very much regretted that it had not been so executed, for the beauty of its form was now almost entirely lost by the absorption of light by the bronze. The same objection applied to the bas-reliefs on the base of that column, though in a less degree, as they were nearer to the eye. No doubt the execution of the capital in bronze had involved a great increase in expense, with a decrease of advantage. It appeared to him that the statue of William the Fourth at London Bridge had a very good effect, as regarded the material employed, and that granite was well calculated to resist the soot and dust of London. Moreover, a reflected light was produced from the quartz and mica in the granite, which gave and added brilliancy to objects in that material. He wished to know if there was any practical difficulty in the more general adoption of granite.

Mr. Smith said there was a difficulty in respect to the expense. He should have been glad to execute the capital of the Nelson Column in granite, for the same sum that it had cost in bronze. The leaves of that capital had been cast by three different persons; the first pair of lower leaves weighed 430 lbs. each, but the others were of only half that weight. The beauty of bronze casting was to have the metal as thin as possible, but the thinner it was, the greater was the cost. The leaves were fixed to the granite bell by a bronze collar, to which they were attached by nuts and screws, which might give way at some distant day, when the leaves of the capital would fall. The extreme hardness of quartz, one of the component parts of granite, rendered the cost of working it very great. Still, it had been carved with the greatest success, and anything could be done in granite, if people chose to pay for it. He thought the cost of granite sculpture would be very nearly that of bronze. The mere cost of bronze was not quite so great as was supposed; but the necessity of providing for the risk of failure in the casting, added much to the expense of that material.

Mr. Scoles, secretary, adverted to the hieroglyphics on Egyptian granite figures in the British Museum, which are polished in the inner surface, and inquired if that polish could not be obtained on granite in the present day.

Mr. Smith had no doubt it could. He referred to granites polished by Macdonald and Leslie, specimens of which were in the Museum of Practical Geology.

Mr. Scoles referred particularly to polished intaglio surfaces.

Mr. Smith said it was only a question of time and money, and it could unquestionably be done. He referred to the tomb of the master-mason to either Queen Anne or George I., in the burial-ground of St. John's, Westminster, as one of the earliest works in granite in England. Its mouldings, though such as would now be considered rude in form and execution, were highly esteemed in his (Mr. Smith's) boyhood.

Mr. Fowler observed that he had seen polished granite chimney-pieces in Devonshire, which had been executed forty years ago. Mr. Smith was doubtless aware that Mr. Cheverton had invented a machine for copying statues in ivory on a small scale. After the explanation just given of the extent to which mechanical aid was carried in sculpture, he was induced to ask if it might not be made entirely so, if the power as well as the process were mechanical?

Mr. Smith had no doubt it might on a scale as small as the ivories produced by Mr. Cheverton; but where so large a mass of material had in the first place to be got rid of, as in carving a full-size marble statue, he did not think it practicable.

Mr. Fowler mentioned that a mechanical process, analogous to Mr. Cheverton's, had been applied to carving in wood.

Mr. Smith dwelt upon the fact, that wood was a material much more easily worked than stone. He believed even stone had been carved by Jordan's patent machinery, but he doubted whether it had proved profitable.

Mr. Mayhew (fellow) alluded to Signor Conti's machine for stone carving, which he described, and which he had seen working busts and half-length figures, apparently with great facility and rapidity. The inventor appeared to consider there was a prejudice against the machine in the profession.

Mr. Smith had not seen this particular machine, but he had seen several others, all of which, however ingenious, had failed in a very short time. He thought there was no prejudice in England against such machines, if they did the work well and quickly.

LOWESTOFT AND THE DANES.

SATURDAY last was an important day for this rising watering-place, and now mail-packet station, for it saw the first steamer depart for Hjerting, in Denmark, as the shortest route to Copenhagen and Stockholm. One main object in opening this new course is the importation of cattle, which by means of the Norfolk and Eastern Counties line will be brought direct to London or the provinces. The Danish king and government are much interested, it is said, in the success of the undertaking, as it will open to them a direct communication with England independent of Germany. The shore arrangements have devolved principally on Mr. Roney, the excellent secretary of the Eastern Counties line. A merry party occupied the vessel (the *Prince* by name) on her first trip, intending to visit Copenhagen and penetrate the country for some distance. Copenhagen, with its Thorwaldsen Museum, Museum of National Antiquities, Opera House, and Royal Library, is not so well known as it deserves to be, and we regard the new route with the greater interest because of the fresh district it will open to the antiquary and architect.

And where is *Lowestoft?* some of our readers will ask. It is about twenty-three miles from Norwich, and nine from Yarmouth; and, through the spirit and taste of Mr. Peto and others, offers strong attractions to the city-worn, who may want quiet, a fine sea, and good bathing. A fine hotel, elegant esplanade, extensive pier, and numerous well-placed modern houses have sprung up in a singularly short time. We were wandering on its beach last Sunday, and were well pleased with Lowestoft and all we found there.

Tradition ascribes the first invasion of England by the Danes to the murder of Lodbrog, a Danish prince on this coast: the invasion of Denmark by England to-day from this point, may be regarded as an interesting return of good for evil, at a long distance of time.

THE NATIONAL GALLERY.—A proposal, it may be recollected, to transfer the national paintings from the Trafalgar-square Gallery to Kensington Palace, was discussed in THE BUILDER some time since. It is now reported that this suggestion is to be carried out by the Government, who are said to have at last become convinced of the necessity of removing them from their present position. If such really be the case, the change will doubtless be carried out forthwith, as Kensington Palace, from the first of next month onwards at least throughout the present year, will be one of the most central positions possible for a popular exhibition to strangers of our national pictures, notwithstanding its suburban locality. The Vernon collection, we presume, would also be removed from Marlborough-house and reunited with the older section at Kensington Palace, otherwise it would scarcely be worth while carrying out such a project.

THE PROPOSED LAW COURT FOR METROPOLITAN BUILDINGS.

BUILDERS' ACTIONS.

AT Leicester, on the 20th, an action was tried, —Holland *v.* the Earl of Harborough. It was an action for builders' work done at the defendant's seat in this county. It was a special jury cause. The principal matter in dispute was the value of the plaintiff's work, and several ineffectual attempts had been made to settle the matter by arbitration. After the case had proceeded for some time the judge expressed his opinion that it was impossible to try the question satisfactorily before a jury, and then the cause and all matters in difference were referred.

This little narrative is unfortunately the history of nine-tenths of the actions brought by builders against their employers. After all the array of the usual artillery of our law courts when the plaintiff's counsel has made his opening oration, and scarcely begun the examination of his witnesses, the learned judge stops the affair, saying, "*it is impossible to try this action satisfactorily in this court: it must be referred.*" Counsel well understand this idea, they are *not* unwilling to attend to the suggestion of my Lord: the bright prospect of further briefs and fees is opened out to view—a job for one of their own craft *most likely*,—the affair is soon hushed, a reference is agreed on, another cause is called on, and thus ends all the ostentatious display of a trial by jury on a matter of builders' account. The same result inevitably happens in attempting to try any question involving technical detail and minute knowledge of building matters. The secret of all this is manifest: our courts of law are *not* adapted for fairly considering such questions—judge, and barristers, and solicitors soon grow weary of a matter they *only half understand*, and the poor plaintiff has the mortification of hearing that he has to begin *de novo*.

These *facts*, illustrated by the above case, form a fair subject for discussion at the present crisis, when we are threatened (by the New Buildings Bill) with a regularly established court of law, consisting of judge and jury, barristers and solicitors, &c., specially to handle *building questions*.

There are deep points involved in this matter affecting the community at large: every one is concerned more or less in building matters, —it may be, perhaps, only in trifling affairs and to small amounts, but the same principle is involved.

All who have had to give evidence in the witness box, and to attend before barristers as arbitrators in matters of reference on building questions, must have found the greatest difficulty in making themselves understood by simple *answers*, and the secret of this difficulty was the want of information on the part of the judge or counsel to know how to *shape the question*: the most absurd confusion of *terms* is often made even by those who take highest rank at the bar.

These reflections are strong arguments for a determined effort against the projected court set out in the New Buildings Bill.

It will be found pretty generally the opinion of the building craft, that practical architects and surveyors would be much the most competent persons to judge accurately of matters appertaining to building, and there are very many in the profession thoroughly well skilled for such duties, who have for a period of years had continually matters of very great importance relative to building works referred to them. In daily practice as men of business we are anxious to adopt the *shortest, safest, cheapest, speediest* mechanism to fulfil a certain desired work. Why should we adopt a different maxim in reference to the perplexing questions that continually arise in building works?

TO RELIEVE SHIPS AT SEA.—It occurs to me that the syphon might be made available in relieving ships at sea from water shipped in storms. It frequently happens that the pumps get choked and will not work, and often the men are too exhausted to work them: would not the syphon obviate this difficulty? It was used a short time ago with complete success at a quarry, and at a considerable saving of labour, time, and expense.—PUPIL.

PLEDGE DEPOTS FOR THE POOR.

THERE is an old saying, as old as our language,

"Eine halfe of the worlde kens not how the oder liveth."

Familiar use has smoothed off its keen asperities: we utter it from childhood, and the acceptation of the terms is, that the modes of sustenance to which one part of mankind are addicted are unknown to the other. The march of language requires, like other concerns, reform and explication: the real meaning is, *one half of the world knows not how the other STARVES.*

It is not in the streets and highways that real indigence is met—that sort of indigence which is forced to suffer; it is in the model and often neat lodging chamber, where decaying misfortune endures in silence the long combatted and slow progress of starvation, unpitied because uncomplaining, unsolaced because unknown.

For the ordinary class of paupers there is the workhouse; for the extraordinary, the resort of the streets; but for the reduced and yet respectable occupant of small houses, decent apartments, or single rooms, whose sensibilities would revolt from even the expedient of an alms-seeking letter, there is no resource—none but to endure and hope against desperation.

Had we a *mont de piété in every parish*, such an establishment would, in countless instances, relieve the necessities of reduced respectable and self-respecting persons in many predicaments.

How often does it happen that for a quarter's rent the whole movable stock of an old lodger is cleared off and sold by the broker? Were such a pledge offered to a pawnbroker, worth suppose 15*l.*, if he took them in at all, he would advance on them 3*l.* 10s.! but he would not receive them. A *mont de piété* would, on one-third of the INVENTORY, lend 5*l.*: this would clear the quarter's arrear, whereas the landlord has sold them off for 5*l.* 11s. 6d., and, after deducting the fees of levy, has returned to the lorn, unhoused, and shuddering wanderer just 2s. 8½d.!

It is needless to follow the course of the outcast in this instance, for in this case "these are (not) the beginning of sorrows."

But manifold are the conditions of men and women to whom the establishment of an *Equitable Pawn and Loan Association* would bring healing and salvation.

Honour to the French nation, which has anticipated us in the walk of charity,—of that true charity that gives succour to the meritorious poor. The next best thing to originating a merciful institution is to copy it. There is no reason wherefore, in this city of wealth and benevolence, such foundations should not exist; and the nobleman who first comes forward with his advocacy and a five-pound note will have the lasting credit of having laid the first stone in the fabric.

It should be a pawn store allied to a loan society on the deposit and registration of INVENTORIES—a society that should lend a reasonable amount on the poor man's bed, and yet leave that bed (in mortgage certainly) for the comfort of (as in too many instances we find it used) his wife, children, and self.

Perhaps it is impossible to make the whole human race happy: it is not impossible to endeavour to do so: the tendency of the British heart and of the British constitution is to secure the greatest possible amount of good for the greatest number, and in no country is there such disparity in the conditions of men, nor consequently so much necessity for the alleviation by fiscal means of that want which our social state renders inevitable. A building is in the first place required for the storage of pledges lent, as by the proposed plan the greatest portion of the advances should be made on attested and examined inventories: that building needs to be but comparatively small. Any old house would suffice: if not, there are correspondents enough with THE BUILDER who will furnish plans. After all, the most beneficent feature of the recommended association is the *gratuity fund*, which, being a portion of the capital made up of subscriptions by the humane, would be applicable to the redemption of deposits or inventories in the last instance.

A committee of inquiry into extreme cases, employing *visitors*, should have the adjudication of these cases and claims. No simple eleemosynary gifts can be of so much importance as aids afforded to the needy in such instances. None but those struggling against adversity, and relying upon industry or periodical income, would apply for relief to the "Mont de Piété." Before that alternative is taken, all other sources of succour must have been exhausted; for in such cases the pawnshop is a hopeless refuge.

That buildings for the purpose of conserving pledges should be fire-proof, is a matter of crying necessity. In case of combustion, the property not of one (as when a mansion-house is burned), but of thousands, is wholly destroyed; and although not more than one-half of the deposits made under the emblem of the three golden balls is ordinarily redeemed, still the value to the other half of possibly all their disposable worldly goods could hardly be requited by a money compensation, were any compensation given.

In cases of pawnbrokers' fires, there is, however, no compensation to the bereaved owner. The proprietor of the establishment may be well covered; the amount of his loan, of his *usance* at 25 per cent., and of his profit on the anticipated forfeit, are all fully protected; but the poor depositor, whose watch, or bed, or tools, or ancestral relique has been pledged for the tenth part of its value, gets no recompense. No; he has not insured: a holocaust is made of the property of multitudes.

The destruction of an immense repository some few years back in South Audley-street, is a notorious evidence of the calamities which such an accident may heap upon the indigent but remediless crowd of poverty.

From the nature of the stores (mostly soft goods) these depositories are much exposed to danger, and being always traversed after dusk with candles, it is only wonderful that fires so seldom occur in such places.

For this reason, if there were none other, it is desirable that all erections for storage of pledges should be *fire-proof*; and for the prompt succour of necessity in the hour of need, it is most of all to be wished that national credit should be allied to the administration of establishments founded on equitable principles, so as to supersede the present iniquitous, extortionate, and but too seductive resorts for misery in the last extreme.

It is clear that no kind of charity can be so efficacious as that which affords on the moment of requirement the means of relief,—which supplies it not as a gift, but as a loan on security,—which yields unquestioning aid to the speculative, the sickly, or the starving,—which yields it not as an alms doth to the clamourer, but as a help to self dependance, in the shape of an advance (the most that the deposit will warrant) at a rate of interest which may requite the lender, and perhaps save the borrower from perdition.

Such establishments would be worthy the age and the country we live in, and the only wonder is that the example shown by the Parisians has not as yet been followed in London. QUONDAM.

A WRITER signing himself "Quondam" proposes in your Journal to establish in London a Mont de Piété upon the principle of that at Paris. He assures your readers that such an institution could afford to advance money at 5 per cent. per annum, 4 per cent. being devoted to the payment of interest on borrowed capital, and the remaining 1 per cent. he pronounces quite sufficient to defray the working expenses of the establishment.

Lest, however, any of your readers should be induced thereby to seek such an investment for their capital, a brief notice of the failure of the Mont de Piété system, as introduced in Ireland under most favourable circumstances, may prove beneficial. A record of the progress of this disastrous experiment may be found in the Annual Reports of the Loan Fund

Board of Ireland, which show in 1841 there were in existence eight of these establishments, employing a collective capital of 26,883*l.* The rate of interest charged by them was, I believe, in no case under 20 per cent. per annum—a rate rather higher than that of the English pawnbroker, but considerably under that of the Irish trade. Yet in spite of this the speculation proved most unfortunate: one by one they retired from the field, borne down by heavy losses, until in 1849 one only remained, and that, I believe, has since wound up its affairs. The following is a summary of their expenditure during nine years:—

	£.	s.	d.
Expenses and interest on capital	17,144	1	4
Gross profits on operations	10,137	12	0
Net loss ..	£7,006	9	4

And yet with such facts as these staring him in the face "Quondam" asserts that 1 per cent. is sufficient to pay the working expenses!

That official extravagance was not the cause of this catastrophe may be gathered from the evidence of Sir Matthew Barrington, given before a select committee of the House of Commons in 1838. Sir Matthew was the founder of the Limerick Mont de Piété, the most distinguished of these institutions. He states that the salary of the manager was 300*l.* per annum, that of the "valuators" 40*l.* a year each, while sundry clerks and messengers received but 20*l.* each.

The Mont de Piété of Paris is a government monopoly, and business is performed therein with about the same degree of rapidity and convenience that distinguishes some of the offices in our own Somerset-house. It lends very little upon the goods offered; in some cases less than half of what a London pawnbroker would advance upon the same articles. Its rate of interest is nominally 9 per cent. per annum, and its net profits, according to M. Blaize,* are under 1 per cent. But such are the inconveniences of having only one or two central establishments in a large city like Paris, that in 1840 nine-tenths of its business was transacted by its licensed local agents (about twenty-five in number), who have subordinate offices in different parts of the town, and with whom the public preferred to deal in the proportion above-mentioned. The Mont de Piété being unable to pay the additional expense of these subordinate establishments, the agent (or commissionnaire) is allowed by law to charge 3 per cent. upon all money advanced, which, supposing the average of each contract of pledge to be six months, would raise the actual rate of interest upon the great bulk of such transactions to 15 per cent. BARDI.

* Des Monts de Piété, &c., par A. Blaize. Paris, 1845.

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN.

THE anniversary festival of this institution was held on Thursday, the 27th ult., at the London Tavern, the chair being filled by Mr. H. Lee, who was supported by Mr. Thomas Piper, as vice-chairman, and by the presence of Messrs. Baker, Grimsdell, Myers, Patrick, W. Piper, and other leading builders, together with a body of members and friends of the institution, to the number of nearly 200.

In the printed report, which was circulated in the room, the committee expressed their obligations to the architects and builders of the metropolis, and other patrons and donors, for their support of the institution during the past year, and specially acknowledged the forcible appeal of the chairman of the last annual meeting (Mr. W. Cubitt, M.P.), which had been the means of placing the true objects of the institution properly before all parties connected with the building trades. The report further stated that 32*l.* 11s. had been granted from the funds for relieving the immediate necessities of afflicted members during the year, and sums amounting to 26*l.* 14s. to the widows of two foremen, who had been left in situations of great distress; the latter grants including an allowance to each individual at the rate of 15*l.* a year. The committee offered their warmest acknowledgments to the members of the late Society of Clerks of Works, for their valuable present of a library and furniture for the use of the members of this institution. The statement of accounts attached to the report showed that the receipts of the year, in contributions and donations from honorary and ordinary members amounted to 390*l.*—the balance in hand, and invested, being 544*l.*

The customary loyal toasts were drunk with enthusiasm, and in mentioning the name of Prince Albert, the Chairman observed, that it was not necessary for him to enlarge upon his Royal Highness's exertions to promote the success of the approaching Great Exhibition, and that, whatever might be the result of that vast undertaking, every person must give him credit for the magnanimity and zeal which he had displayed in the matter.

The Chairman, in proposing the toast of the evening, reminded the company that the institution possessed a two-fold character. Formed, in the first instance, to provide its members with mutual assistance during any temporary affliction that might befal them, its exertions had since been so extended as to embrace the relief of such of the widows and orphans of members as were placed in situations of hardship or difficulty. Whilst almost every trade possessed its benevolent society, the Builders' Foremen had but laid the foundation of an edifice which they very properly looked to their masters to assist in raising to its proper height. The institution might be said to be in its infancy, but in the past year the committee had been enabled to extend valuable aid to afflicted members, and an allowance to the widows of two foremen, which, in their unfortunate position, could not be other than a great boon to them. The objects of these benevolent efforts would not be paraded before them to-night, but if they looked around the gallery, they would behold those for whom it was their first duty to provide, and who might unhappily some day require that assistance which this institution was intended to afford. He hoped he should not plead in vain in behalf of the institution, and that his friend Mr. Piper would kindly aid him, by doing that which his own feeble powers might leave undone. He had much pleasure in proposing "Prosperity to the Institution of Builders' Foremen."

Mr. Baker, in acknowledging his health, as governor of the institution, said, that when the office of governor was offered to him, he regarded it as so high a mark of distinction from a body for whom he entertained the greatest respect, that he could not hesitate to accept it. He felt that the institution had many friends better qualified than himself for the office he held, but he should always exert himself to discharge its duties to their satisfaction. The clerks of works and builders' foremen were a most important branch of the community, and the architects and builders of the metropolis would, he was sure, not only do violence to their own feelings, but be guilty of a dereliction of duty if they did not support them on all occasions; and especially in promoting the success of this institution.

The next toast, "the Engineers and Architects," was acknowledged by Mr. Smith, who, on the part of the architects and engineers, expressed the strongest interest in the welfare of the institution.

"The Master Builders of London, and the Visitors on this occasion," was the next toast, in connection with the name of Mr. Linton, who briefly replied.

Mr. Baker, in proposing the health of the chairman, characterised his conduct, both in public and private life, as that of a man of honour and a gentleman, and one who was ever ready to promote the cause of charity and the interests of the working man.——The Chairman, after replying, proposed the health of Mr. T. Piper, the vice-chairman, who, notwithstanding infirmities, was seldom absent on an occasion like the present.

Mr. T. Piper congratulated them on the character, the tone, and the number of their assembly; on the success which had crowned their exertions in the past year; and especially on the acquisition of Mr. Baker, as governor of the institution; for, by the selection of that gentleman, they had given a pledge to the world of the honourable, upright, and excellent character and purpose of their association. Mr. Baker had spoken of the institution as an ornament to the metropolis: it was in the honest industry of the working classes that the best ornaments of the metropolis really consisted; and brought, as they all were, into daily intercourse with each other, the ties which best united them together were the kindly feelings of charity, which they had that evening met to foster and encourage. He sincerely hoped the society would flourish, and that the claimants on its funds would for a long time be but few. If, however, their number unhappily increased, he trusted their funds would enable them to meet them, and above all, that the provident desire to guard against the consequences of emergencies to which they all were liable, would be the chief characteristic of the members of this institution throughout their lives. In reference to other projects that might be rising up around them, he would observe, that while to the individual the duration of his life was most uncertain, it was equally true that the average of human life was a positive and ascertainable fact; and, as had well been said, *the man who insured his life was not a gambler, whilst he who did not do so was.* In conclusion, he expressed a hope that the feelings which animated them all at that moment might be taken as a fair type of their intercourse throughout the ensuing year.

The Chairman stated that Mr. Piper had consented to take the chair, at the next anniversary meeting.

"The Secretary and the Acting Stewards" was responded to by the former (Mr. Allard), and with the toast of "The Ladies" the proceedings terminated.

In the course of the evening the Secretary read a very satisfactory list of subscriptions, including the names of Mr. Peto, M.P.; Mr. Hardwick, R.A.; Mr. Grissell; Messrs. Dunnage, Alchin, &c., &c., amounting in the whole to upwards of 44*l.* in annual subscriptions, and 271*l.* in donations.

NEW WORKHOUSE, SALFORD.

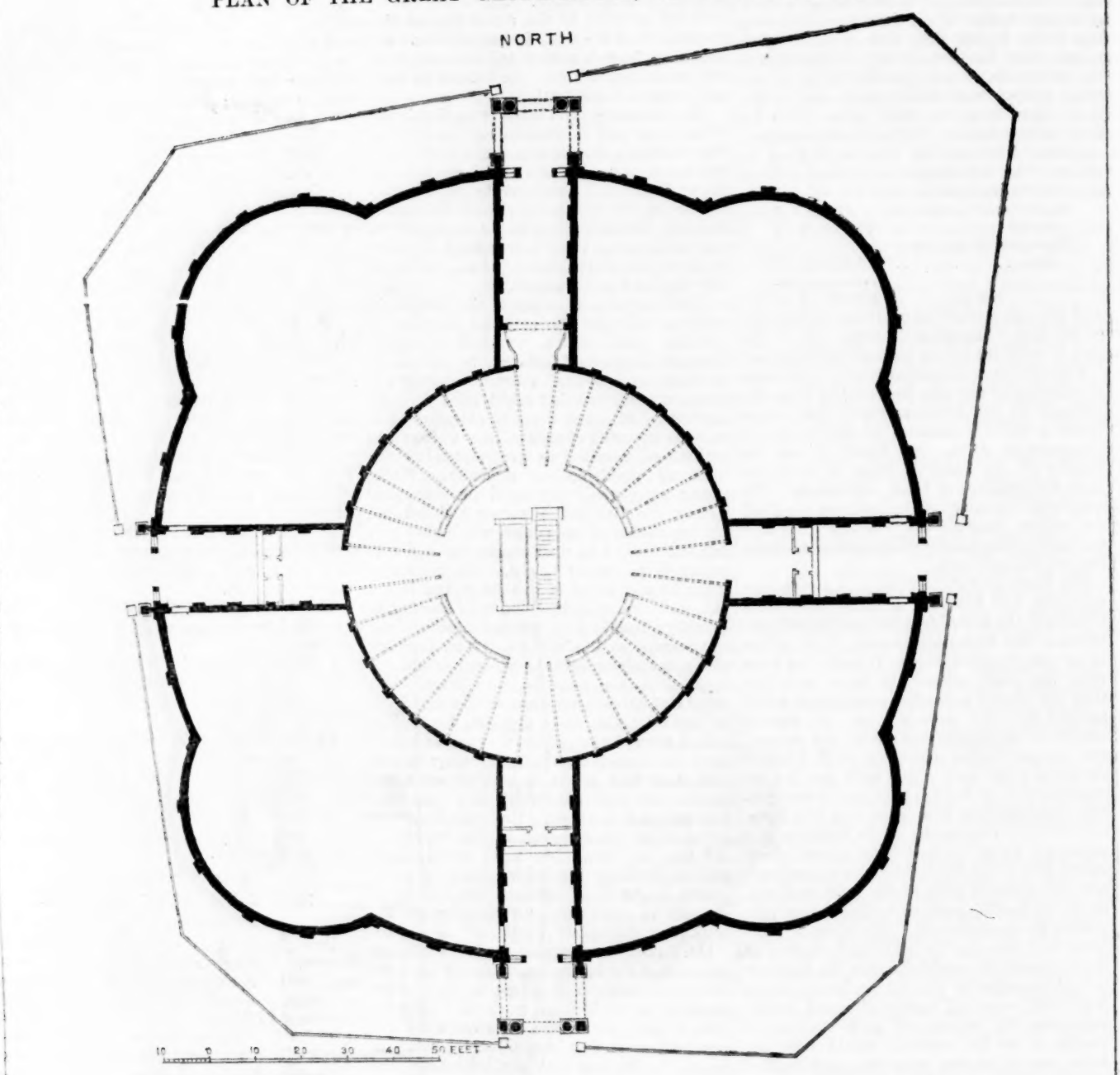
COMPETITION.

THE guardians have selected the plans of Messrs. Pennington and Jervis, for a new workhouse. For the plans of Messrs. Starkey and Cuffley, a prize of 30*l.* was awarded, and for those of Messrs. Clegg and Knowles, a prize of 20*l.* The building will have a frontage of about 110 feet. On the ground-floor will be the clerk's and other offices, a committee-room, &c., and over these will be the board-room, lighted by an oriel window above the entrance. Immediately in the rear, but detached from the offices, will be the vagrant and probationary wards and yards, those for males to the right, and for females to the left. The workhouse building, in the rear of these, but at some distance from them, will have a frontage of 341 feet, with two wings 60 feet long: the building and wings will be each about 38 feet deep, and, in addition to the necessary offices for clerks, &c. the centre of the building will contain accommodation for the master and matron: from the main room of each of these there will be a projecting window, commanding the exercise-yards of the men and women respectively. Over the centre will be a bell and clock tower, with Louvre boards. The front of the offices and the centre of the workhouse are described as, "somewhat in the Elizabethan style." The ventilation will be accomplished by means of 2-inch cavity-walls, with perforated glass in the upper compartments of the windows. The building is calculated to contain 700 inmates, and the cost is estimated at about 8,000*l.*

LORD ROSSE'S CONVERSAZIONE.—The President of the Royal Society has issued cards for May 3, May 17, May 31, and June 14.

THE ROYAL ACADEMY.—Mr. Landseer, R.A., has been elected keeper, in the room of Mr. George Jones, R.A., resigned.

PLAN OF THE GREAT GLOBE-HOUSE, LEICESTER-SQUARE.



THE GREAT GLOBE-HOUSE, LEICESTER-SQUARE.

WE give to-day a correct plan, not before published, and a perspective view of the building now in course of erection, in the centre of Leicester-square, for Mr. Wyld's great model of the world, to which we have before referred. The Globe will be figured on the *inside* instead of the outside of a sphere, and will be viewed from galleries at various heights. The frame of the Globe is formed of thirty-two large trusses, the position of which is marked on the plan. The enclosure is of brickwork, rendered externally with Portland cement. The Globe will be lighted by day from the centre of the dome (as at the Pantheon in Rome), and by gas at night.

The sills on the sleeper walls, to support the trusses, are 12 inches by 6 inches; and the main timbers of the trusses are also 12 inches by 6 inches; the collars being 8 inches by 6 inches and 6 inches by 6 inches respectively. The outer struts are 7 inches by 6 inches. The floor of the corridor consists of sills, 8 inches by 6 inches, resting on 32 intermediate piers. The joists are 7 inches by 2½ inches, and 14 inches from centre to centre. Supported by the 32 trusses is a circular curb, 12 inches wide by 6 inches thick, from which the semi-domed roof springs. The gallery uprights, 12 inches square, in two pieces, bolted together, are 42 feet 6 inches in height, and rest in cast-iron shoes, bedded on the sleeper walls. The frame of the Globe, which is nearly completed, is further formed of horizontal ribs, averaging in scantling 2½ inches by 3½ inches, and 2 feet from centre to centre, which are battened ready to receive the plaster modelling. The external diameter of the Globe, from batten to batten, is 60 feet 4 inches.

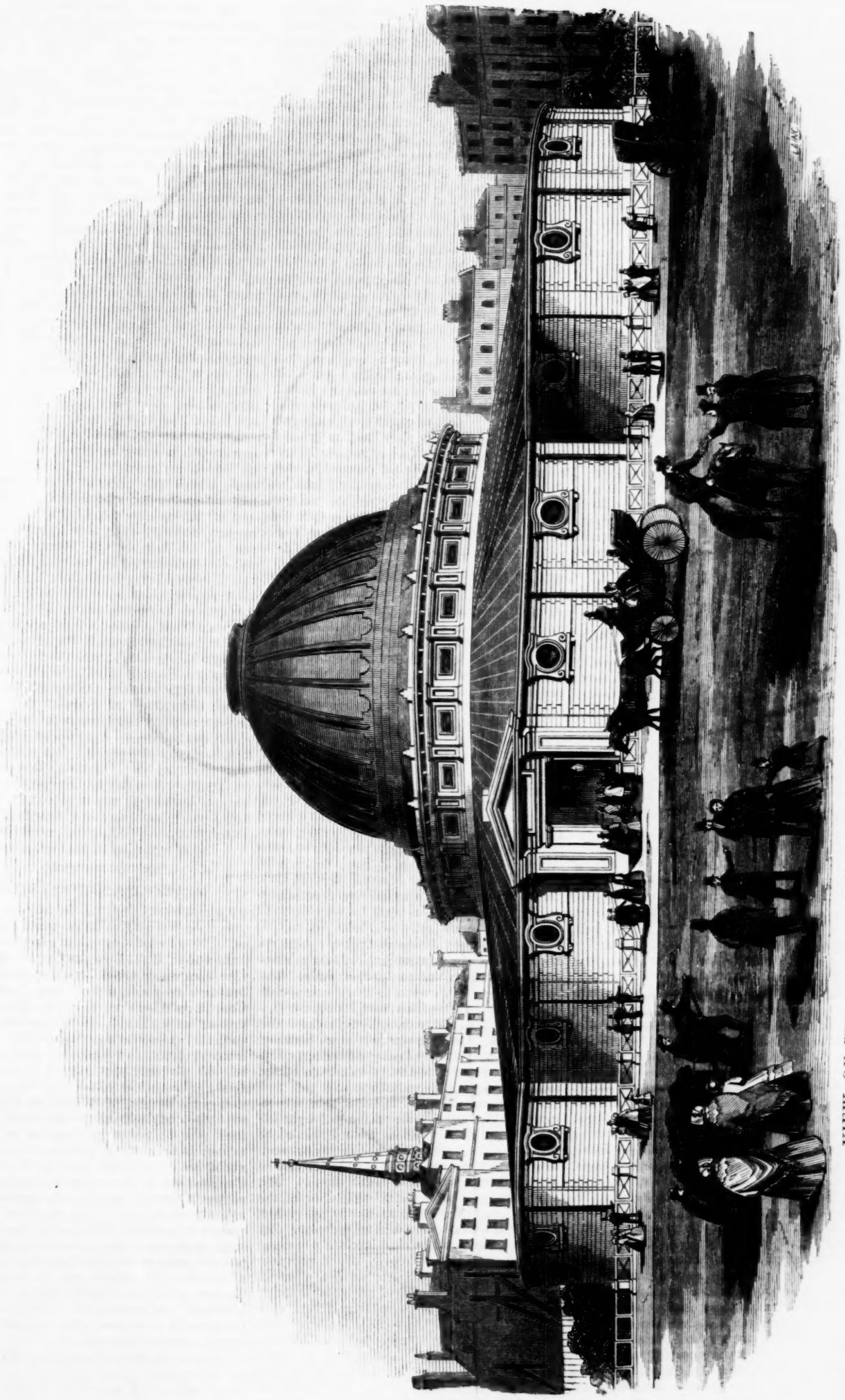
The covering of the dome is of lead. Skylights at the foot of the dome will light the corridor which is formed around the globe between the framing and the enclosing wall. The four outlying apartments will probably be appropriated for other exhibitions. Mr. Abrahams is the architect engaged upon the work,* and Mr. Myers the builder. Mr. Wyld has a lease of the site for ten years.

DIORAMAS.—The diorama mania, a pleasant and, we hope, profitable one, is spreading. Whitechapel has now its Illustration of the Route for Emigrants "from Waterloo-bridge Road to the Harbour at Sydney, in Australia;" and Southwark its "Tour from England to Paris." The former is painted by Mr. Frederick Fenton, and embraces views of Lisbon, Gibraltar, Cairo, Calcutta, &c.

* In our first notice of the building we gave the name of Mr. Welch as the architect. This was at that time perfectly correct, but the work afterwards changed hands.

LONDON GAS COMPANIES. — When the City companies failed in their strenuous endeavours to strangle the "Great Central Gas Consumers' Company" in its birth, we expressed an earnest hope that they might not succeed in smothering it next with amalgamative kindness. It scarcely surprises us now to find not only that "the City of London Gaslight and Coke Company" is acting the part of the too kind *foster* mother who is likely to do so, but that the "dear little infant" itself is rushing into the arms so lovingly extended towards it. A petition, it appears, is about to be presented to the City Sewers Commission by the Great Central Gas Consumers' Company, praying the approval of the commission to an arrangement for amalgamation with the City of London Gaslight and Coke Company! Mr. Deputy Harrison has already given notice that he will present such a petition. All we have now to do with this question is to record the fact.——A reduction of the price of gas to 4s. a thousand cubic feet has recently been announced by another of the metropolitan gas companies.

NEW PATENT *v.* BURGLARS.—H. S. Ridley, of Vincent-square, Westminster, surveyor, and J. Edser, of St. James's-terrace, in the said city, builder, for a safety hinge and certain apparatus for the detection of burglars and prevention of burglaries.



VIEW OF THE GREAT GLOBE-HOUSE, LEICESTER-SQUARE.—MR. H. R. ABRAHAMS, ARCHITECT.

BOILER EXPLOSIONS.

IN one week three frightful steam-boiler explosions have recently occurred,—one at Stockport, where twenty lives were lost and valuable property destroyed,—one near Paisley, where six or eight lives were sacrificed,—and one in Manchester, which has involved the loss of seven or eight lives more. We begin to hope that an explosion in the vaults below the House of Commons or the House of Lords may *not* now be needed in order to insure the effectual co-operation of the Legislature and the Government towards the diminution at least, if not the extinction, of this ever-recurring waste of life and property. We have long alone urged that something ought to be done, such as the institution of a formal system of inspection, independently altogether of the discussion of any question as to special preventives, or of any inquiry as to general causes; and we are glad to find that now we are not alone in this good cause. Some of our provincial contemporaries, locally interested in the subject, have of late been also calling attention to it. The *Manchester Courier* "hardly likes to arm another department of the Board of Trade with power over steam boilers; but if some other safeguard against such losses of human life as have recently taken place cannot be found, can really see nothing else for it." At all events, "every boiler should be tested under competent inspection. There are proof-houses for guns and musket barrels; why should there not also be proof-houses for boilers?" The *Manchester Spectator* is of opinion that "to prevent the running of engines at such a pressure as to be utterly unsafe, and to fix the responsibility, the aid of Government must be called in, and, at all events, that a repetition of such calamities will soon make it a question not only between the owners of boilers and their workpeople, but between the former and the public at large." The metropolitan *Spectator* labours under the very mistaken idea, that the actual visitations of such dangers are not in general very frequent. Nevertheless, it is of opinion that "danger to workpeople should take the form of expense to employers, and we should then have one of the best stimulants to investigation and the practical application of progressive discoveries." We earnestly trust that something will be done at once, and the lives of our industrious population be protected henceforth at the instance of the Legislature, at whose mercy, though no criminals, they may in this case be truly said to lie.

NOTES IN THE PROVINCES.

THE erection of a covered market-place at Reading is being urged by the local press.——The price of gas at Loughborough is to be reduced in June next to 7s. a thousand cubic feet, with 20 per cent. discount for cash.——A site for a new church at Hove, Brighton, has been offered by Baron Goldsmid, who has already refused 1,000*l.* for the same piece of ground. Subscriptions amounting to 1,500*l.* have also been promised and mostly realized. About 4,500*l.* is the sum wanted. Of this another 1,000*l.* is to be borrowed on the parish rates. The building is to seat 900.——It is proposed by a correspondent of the *Hampshire Independent* to erect a statue to Dr. Isaac Watts, a native of Southampton, at the end of the town and avenue, where some alterations are going on at present.——It is said that Lord Ward intends applying the income to accrue from the lease of the Dudley Castle grounds to the South Staffordshire Railway Company for fete occasions, to the erection of almshouses for aged and incapacitated miners.——The gross rental of the Bristol Waterworks in March, 1850, was 5,646*l.* 16s.: it is now increased to 7,727*l.* The rental for "domestic use" in March, 1850, was for 3,315 houses: that for March, 1851, for 4,686 houses. There are at present upwards of 24,000 houses within the limits of the Act, a large number now in course of erection, and sites laid out for others in a variety of places. The length of mains to be laid was estimated by the engineer at 65 miles: 62 are already laid, and owing to the erection of houses in new districts, the mains will be increased to at least 75 miles.——There are at present engaged on the Breakwater Works at Portland about 120 men, exclusive of some hundreds of convicts. Mr. Leather, the contractor, has yet to construct upwards of 1,000 feet of this undertaking. The works at present are progressing steadily.——The foundation-stone of a Temperance-hall was to be laid at Stonehouse on Monday last.——At Gloucester a new monument in commemoration of Bishop Hooper is proposed, in the place of the one now standing in St. Mary's-square.——The Gloucester Gas Company intend to reduce the price of gas to 6s.: the consumers demand a further reduction to 5s.——A plumber and glazier at Darlington was lately fined 5*l.* for helping himself (for how long is unknown) to the gas of the Darlington Gas Company without leave asked or payment made. He had supplied his legitimate burners by a subsidiary pipe, which he could fix and remove at pleasure, according to the local *Times*, without its passing through his meter.——The erection of the new Roman Catholic cathedral at Buckie, says the *Elgin Courant*, has been entrusted to Mr. John Lamb, builder, Bishopmill: Messrs. A. and W. Reid are the architects.——A milldam, covering 80 to 100 acres, at Eaglesham, according to a Glasgow paper, gave way on Monday in last week, and destroyed a good deal of property.——The Clothworkers' Company of London has offered to give 15 acres of building land, near Coleraine, as a site for the erection of the proposed "Magee College," and also a donation of 3,000*l.* in aid of the fund for building and endowment.

A HOME FOR THE ARTS AND SCIENCES IN THE METROPOLIS.

IT is a disgrace to this country that the Government do not provide a national palace of ample size for the residence of Art. Private subscription has raised in a few months a Palace of Industry of great cost, for its temporary accommodation, and the Government might safely rely on the public support for the erection of a building adapted for the purpose. Why, then, should it any longer turn a deaf ear to the matter? Let it at once set about it, and make amends for placing the munificent donation to the country of a private individual in a cellar, then transferring it to a place wholly unsuitable for the purpose as a temporary abode. To its further discredit it leaves our scientific societies to shift for themselves. The Royal Society has no place that it can call by right its own, which it most decidedly ought to have, dedicated to it by the nation. The Society of Arts is in a similar position, and many other societies, such as the Antiquarian, the Archæological, the British Architects', and the Engineers';—all such have a most equitable claim on the country for house room.

We have a Prince, the consort of our beloved Queen, who is doing much for us, and I sincerely hope that his present exertions may be appreciated by all. I am sure his intentions are good, whatever the result may be, and that they may lead to a better state of things must be the wish of all. To him, therefore, Mr. Editor, let us all appeal—let us with one voice declare that such a disgrace to our country ought at once to be removed.

Let us be able to point with the finger of pride to our national buildings for the reception of art. Our British Museum is (although it may not please all our architectural critics) still the only building we have worthy the name of a national building, as applied for the reception of art. The National Gallery might do very well for the Society of Arts, in conjunction with the Institutes of British Architects and Engineers, or for any of the other societies which are considered entitled to any national accommodation, and for which it might be best suited. For the National Gallery of *Painting and Sculpture*, combined with the Royal Academy and the Annual Exhibition of Modern Art (for they ought all to be in the same abode), I would find better accommodation, and in the very heart of the metropolis, where the National Gallery ought to be, and as easily accessible to the people of the east as of the west, or of the north, or of the south, of this great city.

I am not one of those to propose impossibilities, and merely waste your time, Mr. Editor. I have given the matter much consideration, and I do not see the difficulty of obtaining a palace (or palaces, if necessary) for the appropriate residence of the arts and sciences in one of the most civilised countries of the world. No time like the present; and surely, with an overflowing exchequer, it would be a very proper time to set apart a few thousands, which none would grudge, for the commencement of a fund to be applied to such a noble purpose: it would tend to the instruction and delight of the million, and would not only raise us in their estimation, but in opinion of our continental neighbours, who most justly sneer at our most degrading position.

Pray, urge this matter on the consideration of the Government, and call on the public to support you in so laudable an undertaking, and invoke our Prince to take the matter into his serious consideration.

I have heard from good authority that the noble proprietors of BURLINGTON-HOUSE, PICCADILLY, would dispose of their property, in which, by-the-bye, I am in no way interested; but I do not know a more eligible spot in the metropolis than that for a National Gallery, and the Government ought to be ashamed of itself, if it let the opportunity of purchasing it slip: it has a frontage of 287 feet by a depth of 600 feet, and the present mansion might be applied for the accommodation of the Royal Academy, or any other purpose which the Government might choose to dedicate to art.

I am sure the noble Earl, the amateur architect and its founder, would right gladly bring this matter to bear if he could only rise from his grave and see how appropriate it would be for such a purpose, and how little appropriate it is now for a private residence, owing to the great alteration which has taken place in the surrounding property.

I trust you will concur with me in my ideas, or at any rate that you will allow them to occupy a space in your journal, that they may rouse the British Lion to plead for art.

CHARLES MAYHEW, Architect.

IRISH ENGINEERING AND BUILDING WORKS.

THAT part of the Dublin and Belfast Junction Railway, between Gorah Wood and Portadown, is steadily progressing towards completion, and is to be delivered up ready for traffic on the 1st of June next. Sir John M'Neill is the engineer in chief.

The contract for the portion of the Londonderry and Enniskillen Railway, between Strabane and Newtownstewart, has been disposed of to Mr. M'Cormick, and the works are at present in progress.

The Board of Superintendence of the Cork Bridewell have commenced to add considerably to the accommodation in their prison: they have also determined to introduce gas.

The unfinished works on the new road at Scarawalshe, leading from Enniscorthy to Bagnalstown, including the building of a bridge, and which contain 1,477 perches, are to be completed, and the cost is not to exceed 2,200*l.* Also the unfinished works on the road leading from Gorey to Tirmahely, containing about 631 perches, and the probable cost of construction will be 946*l.*

Sundry works are to be executed at the Church of Derryvollen, county Mayo, according to plans prepared by the architect to the Ecclesiastical Commissioners.

The Poor-Law Commissioners have advertised for the erection of sundry buildings to the workhouse of the Ardee Union, according to the plans prepared by Mr. Wilkinson.

The Drainage Commissioners finding that the bridges, culverts, &c. within the districts of Turloughmore, Lavally, and Lough Corrib were insufficient, have caused same to be reconstructed, and have declared that the expenses of executing the works shall be as follows:—Lackagh bridge, to cost 207*l.*; Corro-

fin ditto, 257*l*; Claretuam ditto, 310*l*.; Claren ditto, 10*l*. 10s.; Toberbracken ditto, 200*l*.; Mailcoach-road ditto, from Galway to Dublin, 132*l*.; Barrack ditto, 13*l*.; Bridge-street ditto, 22*l*.; Moycullen ditto, 80*l*.; Claregalway ditto, 424*l*.; all in the county of Galway.

The plan of the proposed "glass palace" at Belfast will be rectangular, its total dimensions being 110 feet by 57 ft.: a dome is to surmount the edifice, the height to its summit being 40 feet. The building will be constructed principally of glass, wood, and cast-iron, and the roof is to be formed on the ridge and furrow principle. The water will be conveyed down the pillars at sides, and from their bases into sewers. There are to be no metal girders, whatever, and the pillars are to be cast in one length. The cost of erection is estimated at 780*l*. Mr. John Boyd, architect, of Belfast, has been instructed to prepare the necessary drawings.

The railway to Waterford is to be proceeded with: it is to join the Waterford and Kilkenny line close to Waterford, both companies having a common terminus. The line will be finished to the junction, near Waterford, in little more than two years: the remaining portion (52 miles) is confidently expected to cost only 8,000*l*. per mile; and the average cost of the whole line (77 miles) will not exceed 12,000*l*. per mile. Mr. G. W. Hemans is the engineer-in-chief.

A new Temperance Hall has just been completed at Dungannon.

The addition to the old Infirmary, county Sligo, is now in progress of erection, according to plans by Mr. Wm. Deane Butler, architect, of Dublin. Attention, it is said, has been paid to provision for heating, ventilation, and light; day-rooms for convalescent patients; and the speedy removal of all nuisances by soil-pipes attached to each ward. A system of lifts is observed throughout, by which much time and labour are saved.

RAILWAY JOTTINGS.

A LARGE force of excavators has been put on the works of the large tunnel on the South Wales Railway, west of Swansea.—— It is reported that the contracts and working plans of the Great North of Scotland Railway between Aberdeen and Keith, or Huntly, have been signed by contractors, and that the works will be commenced forthwith.——The South-Western Railway Company, says the *Hampshire Advertiser*, "are attempting to charge, for the conveyance of working men to the International Exhibition more than double the amount for which they brought the Londoners down to Southampton by the excursion trains last year, and which turned out to be so profitable a speculation." We have heard of extravagant spendthrifts first ruining themselves by profuse expenditure in their youth, and then ending themselves in their maturity by miserly and unreasonable greed of gain, frustrating its own aim by an extreme as great as the first, though in the opposite direction. It really appears as if the railway interest, having gone through the former process, were now bent on pursuing the latter. The idea entertained by some of the companies, that by charging the Exhibition excursionists double the amount charged with so much profit to other excursionists, they will double that profit, is puerile: they not only will not double it, but they will not equal it. The cheapness of the fare was the *sine quâ non* of that profit: surely the most fatuous miser might now be able to comprehend that fact. As for all the difference between the special attractions of the Exhibition itself, and those of previous or other excursions, the companies will find that neither Cocker nor Stocker will bear them out in their calculations on that score. The personal expenses are a heavy drawback, which it would be well for the railway companies not to cast the scale against altogether. Their cue is rather to smooth the way—to tempt towards the incurment of that expense—by *excursion* fares *more than usually low*, in place of more than double the usual amount,—a gross error in self-interest. Our advice the companies ought to respect; for they have had THE BUILDER to thank for the excursion profits of the past year, and of many a year yet to come. ——The Great Northern now supply coals to the metropolis at rates so low that they are delivered free of all expenses, in London and within five miles of it, at 17s. a ton for the best, and 14s. for the lowest: sixpence a mile extra beyond five miles. Attempts have been made to prevent the sale of this coal in the metropolis, by false representations as to its quality for household purposes. We have purchased and used some of the best quality ourselves, and find it not only excellent but preferable to what had been previously in use at a considerably higher price. The public benefit, moreover, thus derivable from railway transit, will not cease here; for doubtless the prices of all other coals in the metropolis must, in consequence, be very speedily reduced.—— A statue of the late Mr. G. Stephenson, by Gibson (lately dispatched from Italy), is to be placed in St. George's Hall, Liverpool. It was sculptured at the cost of the Liverpool and Manchester company, and will be exhibited at the Royal Academy before its inauguration. The *Gateshead Observer* asks, "where is the Newcastle statue," and complains that "the prophet has no honour in his own country."

ANCIENT CHURCH ARRANGEMENTS.

THIS little (and as I am beginning to fear) serio-comic controversy about ancient church arrangements, in which Cardinal Wiseman (*sub-silentio*), Mr. Elliott, and my nameless self, appear as champions, reminds one of the story of the three brothers, under which the witty Dean of St. Patrick's describes the three classes of religionists which we perhaps severally represent. Mr. Elliott and I take the places of the two younger brothers, who, on discovering the sophistries by which their elder brother had induced them to overlay their simple coats with the trappings of successive modern fashions, set to work, each in his own way, to rid their garments of these spurious overlayings. The second brother, "Martin," sets to work quietly to unpick the stitchings by which the offending patches have been attached, his chiefest care being to avoid injuring the coat; while the third, who is disrespectfully named "Jack," in his fury at finding to what deceptions he had been subjected, is less cautious in his operations, and with every patch he gets rid of, he tears off a shred from the original garment. Poor Martin, through taking the middle course, becomes the butt of both his brothers: Peter declares him to be only a spurious edition of Jack, while the latter thinks him worse than Peter, inasmuch as his simpler dress gives him an aspect of feigned purity; so that between the two, he leads a very disquieted and thankless existence.

Now I find myself exactly in this unhappy position. I hold myself to be a very good Protestant, and have even been accused of fanaticism on that side on some questions bearing upon architecture; but to my infinite dismay, I now find myself placed on the same side of the lists with Cardinal Wiseman and Pugin, and all because I cannot bring myself to take up with this little monomania of Mr. Elliott's! Being, however, conscious of no wish but to distinguish the *coat* from the *patches*—the original from the spurious—I willingly bear with this reproach; nor will I again try to shake Mr. Elliott in an opinion he holds so dear.

My object in now writing is merely to beg any of your readers who may feel interest, and desire more information on the subject, to refer quietly to the various authorities to which I have before alluded, and to collate Mr. Elliott's quotations with the original. I will not again risk the charge of "begging the question," but I think I am pretty safe in anticipating their conclusion, that he has, in his zeal for his own view, deduced from Justin Martyr conclusions for which he gives no ground; that he has diametrically reversed the meaning of Eusebius; and that he has quoted, as from St. Paul, a statement not to be found either in his or any other of the sacred writings. His quotations and deductions from my own letter are almost equally open to dispute, but they may be easily examined. He claims a great victory over me from the admission supplied from my quotation from Siegel as to persons not having been, in the earlier ages, absolutely excluded from approaching the altar; while it will be clear to any reader of church antiquities, that it is a point on which no one ever dreams of doubting. He accuses me of saying that Canterbury Cathedral was like the basilica of St. Peter, and jokes a great deal himself, and suggests that I was joking in making such an assertion.

What I said, however, referred, not to the existing, but to the "*early* cathedrals," and that only to some portions of the arrangement, and my "jokes" were derived from Professor Willis's admirable treatise, to which I beg to refer. He further accuses me of attributing the increase of the length of chancels to "the increase in the number of the *clergy*," carefully omitting the words "*or choir*," which make all the difference. I am not anxious about this last question, as I hold neither with transubstantiation nor with very extended chancels; but I would ask, if one were the sole cause of the other, how we are to account for the great varieties in their length, and the accompanying increase or diminution of the *stalls* they contain? If, for instance, at Boston, one of the largest simply parochial churches, we find a chancel of some 80 feet in length, containing no less than sixty-four stalls, besides other seats for about a dozen people, while in modern Roman Catholic chapels (and in some few ancient churches), we often find no chancel at all, excepting merely the altar space, and no stalls whatever, is it most reasonable to attribute this to a difference of *staff* or a difference of *doctrine?**

This, however, is not the question between us: on the real question I will only again urge that those who seek such information should apply to the best authorities and *judge for themselves*; but as Mr. Elliott has boldly claimed the first seven centuries as his own, and *existing* churches as his evidence, he must not be allowed to retreat behind the cloud of the three first centuries, on whose church arrangements we have so little direct information.

S.

* I believe that the fair proportions of the building had also a due influence on the length of chancels; but, as a general rule, that they varied with the collegiate or other choral staff, whether permanent or occasional. I could point out an instance of a chancel being in the reign of Edward IV. reduced to one-fourth of its length, still retaining the usual choral arrangement, with *new* screen and stall seats, simply from an accompanying change in its ecclesiastical staff.

GUIDANCE OF BALLOONS.

A CORRESPONDENT, "Sub Dio," has been trying his hand at the solution of this knotty problem, and the result, though not so novel as he probably supposes, is well worth recording, in as much as the ideas which force themselves on the notice of a number of minds independently meditating on the same subject, are likely to prove, ultimately, in one shape or other, to be the most feasible and practicable. "Sub Dio" is of opinion that it is in vain to attempt to imitate the bird or the fish in the general principle of balloons, yet he suggests that the form should be that of a ship, or at least the bow or breast of such a vessel, not adverting to the circumstance that in all probability this very form is itself an imitation of that of swimming birds. However, that is an oversight of secondary moment, and moreover it is more particularly the form and movement of the wings to which "Sub Dio" refers, and which he thinks it will be in vain to attempt to imitate: yet mechanicians have successfully imitated far more unlikely and more complicated movements than this. The main principle of our correspondent's suggestion is that progressive motion in any desired direction might be obtained by means of a screw propeller, of canvas, affixed to the stern of a light bamboo-framed, sloop-shaped, gas-filled, and buoyant balloon, with a keel spreading out below into a gig for conveyance—all of a piece, or fixed, not suspended, to the machine, so as to enable the canvas fan-screw to act simultaneously on the whole. He thinks

that "if a screw steamer and cargo, together weighing 800 or 1,000 tons, can be impelled against wind and tide, through a dense body like water, by a screw propeller, at stern, of three comparatively small fans, an elastic balloon and gig, such as that described, might be propelled at an inconceivable velocity, and in a straight course through thin air, by a screw and fans of canvas, with a helm, if necessary, added, or the screw itself acting as such on a pivot or groove." It must be recollected, however, that the thin air which presents so little resistance to progression, also presents as little purchase to the means of progression.

Another correspondent, "E. E. M. Civil Engineer," writes to us that he has rendered a plan of his for traversing the air without the aid of gas at all, so complete that "it only awaits practical adoption to test its real merits;" but he complains that Government will not grant him £4,000 for that purpose. We fear that "E. E. M." knows very little of such worldly affairs as those of Government grants, if he ever expected as many pence as the pounds he requires, without both strong interest and equally strong evidence of that very practicability which he requires Government to test. "E. E. M.'s" invention, he tells us, is expected to travel upwards of 100 miles an hour, either close to the ground or at any elevation; can be raised or lowered at pleasure, or directed in a straight line, and made to descend at any precise spot with the most unerring certainty; will carry 30 or 40 persons, with provisions, luggage, &c., and will have sleeping berths, and other conveniences, like those of a first-class steam-vessel: compelled to descend in the ocean, it will float with perfect safety: finally, it is expected to accomplish the aërial voyage from London to New York in two or three days.

FOREIGN INTELLIGENCE.

French Health of Town Commissions.—The great example started by England in this most important new social measure, begins to be extensively imitated on the Continent, whose less *formal* laws allow a still more decided way of procedure for the public good. On the 1st of March last the commission *des logements insalubres* at Lille has pronounced its judgment on 340 cellars (*caves*), and 469 lodgings, submitted to its arbitration. Of these 212 cellars have been condemned as unfit for habitation. The 128 cellars not condemned will, however, not be allowed to be inhabited, till after having undergone reparation and salubrification (*assainissement*), according to the instructions of the commission. Of the 469 lodgings examined, 86 have been condemned as incapable of being salubrified. 383 lodgings will also not be inhabited till after having undergone the above process. Independent of these decisions, the commission of Lille has ordered 135 items of sanitary improvements in the shape of cleansing of sewers, paving of courts and corridors, draining of water, ventilation of staircases, &c. Most of the proprietors have (be it said to their credit) cheerfully submitted to these enactments: in other cases, the commission has ample power given to it to compel parties, who will *live* and luxuriate on the sufferings and death of others.

Alimentary Statistics of Working Men.—According to some recent observations of M. Gasparin, in Paris, the complete nourishment of the human organism requires the presence of certain primary principles,—azote, carbon, hydrogen and oxygen, chlorine, sulphur, lime, magnesia, soda, potass, iron, &c. The quantity of *azote* sufficient to keep a person *in statu quo*, without doing any work, is 20 grammes for every 100 kilogrammes (pounds) of his weight; of *carbon*, 422 grammes for every 100 kilogrammes; *hydrogen* and *oxygen*, *sulphur*, *magnesia*, *phosphorus*, &c., will be found in sufficient quantity in any sort of food (with drink) generally taken. One substance however, *chloride of sodium* (common salt) must be superadded to any sort of human food, in the ratio of 17 grammes of salt for every 100 kilogrammes of weight. The *azote* is yielded by meat, milk, the different sorts of grain, and the legumens (peas, beans, &c.); the *carbon*, by the fats, the alcohol, &c. But the case stands quite different with working people. A hard-working man will require of *azote* 25 grammes, *carbon* 309 grammes. The fats seem to become the more necessary, the farther we go North. Such as *are* inclined to take fermented liquor, should, according to the authority of M. Gasparin, take never more than a quantity which contains 1-15th of a litre (pint) of alcohol: to avoid overcharging the stomach, no one meal should be of more weight than 1·75 kilogramme. M. G. thinks also, that the potato disease will lead the people to the use of maize, whose nourishing and strengthening properties are of a high order.

A new Species of European Antiquities.—Professor J. Kollao, of Vienna, is about to publish an extensive work on the *Slavian* antiquities of Italy—as well as a description of the Pagan divinities and Slavian mythological monuments found by him in Mecklenburg. The Duke of Mecklenburg pays the expense of this costly work.

Projects about the Berlin Academy of Arts.—[Academie der Künste.]—A most strange, novel, yet not quite objectionable plan for remodelling the Berlin Academy of Arts, is said to have been entertained by the secretary of Public Instruction, M. Ladenberg. The plan comprises a general fusion of *all* art branches into one teaching and executing body. M. de L. proposes, that the committee of the academy should comprise painters, sculptors, architects;—and that also poetry (!) and the dramatic arts should be there represented. Besides this, associations of artists (*Künstler-Genossenschaften*) were to be established, which ought to receive—like in the middle ages—regularly affiliated members, and who should be also represented in the councils of the academy. The committee to be connected with, and superintend three different colleges or schools,—one for the arts, properly so called,—one for music and theatres.

Professor Begas is commissioned by the King of Prussia to paint for the Royal Gallery the portrait of the late Meyerbeer. From the manner in which that artist had seized and rendered that of *Alexander Humboldt*, great expectations may be raised at this new performance.

ATTEMPT FOR A NEW STYLE OF ARCHITECTURE.

PRIZE PROGRAMME OF THE MUNICH ACADEMY OF ARTS.

CONSIDERING the great buildings erected of late years in the Bavarian capital, in their great *ensemble*, we shall find, that although no *new style* of architecture has resulted therefrom, yet its whole history is displayed, as it were, in most faithful and gorgeous delineations. Thus the Greek or Architrave style of straight lines is exhibited in the Glyptotheka, and the hall opposite to it, as well as in the throne-hall of the palace, turned towards the royal gardens, the latter the master work of M. de Klenze. The Roman style of the arch, vault, and pilasters is figured in the interior of the Glyptotheka and the triumphal arch. The Roman-Christian style, with its simple columns of Byzantine proportions and capitals, we find in the peristyle of the church of St. Bonifacius. The Florentine palace-style is exemplified in the royal residence towards the Marxplak, and in the library, whose front resembles the Palazzo Riccardi. The hall of warriors (*Feldherrenhalle*) is a fair re-modelling after the graceful and almost lofty Loggia dei Lanzi, in Florence, and makes the ultimate transition to the new Roman style of palace architecture.

To crown, therefore, endeavours so honourably begun and continued, the Royal Academy of Fine Arts have put forth a programme for the sake of further progress. It bears the title "Prize Competition for the Plan of a Building destined for a higher culture and instruction establishment (*Bildung und Unterricht-Anstalt*)." It is accompanied by a lithographed plan of the proposed site of the building, and a memoir explaining the spirit and intention of the proposed undertaking. It embodies, first, the idea "that in no branch of art the searching after a new, rational, and time-appropriate development has been so strong and determinate as in architecture." Some, it is true, have only endeavoured to repristinate old building styles, and thus to gain, by a combination of the elements and peculiarities of these, a new principle. Still, it seems, that the authors of the programme are themselves not quite sure on that point, as they appeal to the experience of after times to know, whether a new style be really possible. They start the question, "whether that tendency of our times to *organise* every relation and force of national life will be available to architecture.—To co-operate in this tendency, the above prize offers an appropriate occasion, as it affords artists an opportunity of making an experiment in a practical execution of corresponding worth and magnitude." Although it cannot be doubted, that "an expressive and beauteous work of art" will result, yet, whether "the desire after *a new* style of architecture will be at once achieved" is to be seen. The competitors will have "full liberty to use the existing building styles and their ornamentations." Interesting is further the remark—that we live in a time of thought (?) and investigation, and that "also in the province of architecture, we have to leave the path of unconsciousness and naturality (*Natur-Wüchsigkeit*),—the fundamental idea of our epoch being the tendency after freedom, and an unshackled use of physical and moral powers and their development."

The programme has elicited some weighty and interesting commentaries, the writers of which express the same doubt, whether a new style of architecture be possible, and hint at the many doleful errors present mankind has already got itself into, by wishing to bring forth things quite *new* and *unheard-of*. The three prizes offered by the Munich Academy of Fine Arts consist of 4,000, 2,000, and 1,500 florins respectively, which on the Continent are considerable. The period fixed, however, being very proximate (31st July next), is not considered adequate to such an enterprise. It will, probably, be prolonged hereafter.

THE SEA-WALL OF PENMAEN MAWR.

AT a recent meeting of the Institute of Civil Engineers, Mr. H. Swinburne read a paper descriptive of the "Sea-walls of the Chester and Holyhead Railway at Penmaen Mawr:"—These walls were described as extending over a length of one mile and a quarter, sustaining a terrace beneath the steep slope of Penmaen Mawr, through the rocky headland of which the railway was carried by means of a tunnel, about one-eighth of a mile in length. This terrace was partly cut out of the cliff on the east side of the headland, and on the west side, for a distance of 550 yards, it was wholly formed of embankment, beyond which there was a cutting about 110 yards in length, followed by 220 yards of terrace; then another cutting about 350 yards in length, succeeded by an embankment retained on the seaward side by a wall, about 260 yards of which was within the reach of high tides. The original design of these walls consisted of a plain retaining wall, nearly triangular in section, 3 feet thick at the formation level, with a straight face battering 3 inches per foot, the back being vertical. The parapet was to have been formed of a small breast wall 3 feet higher than the level of the rails, and 2 feet thick. The masonry was specified to be "coursed walling," squared with the pick; and the face to consist of one header and two stretchers alternately. The works were commenced in the autumn of 1845, but, after two months' experience on the coast, it was thought advisable to deviate from the original design of a straight face to the wall, and to substitute an arc of a cricle of 60 feet radius, with a slightly overhanging parapet, and, to prevent the great increase of masonry which would have resulted from this alteration, the back of the wall was also curved. This was afterwards found to be impracticable, and the section was, therefore, materially altered. The nature of the mate-

rials not admitting of the "coursed walling" being executed with facility, it was determined to introduce an ashlar facing of limestone, procured from the north coast of Anglesea, and set in cement for a depth of 18 inches from the face. The main seawall, immediately to the westward of the headland, was now commenced, and, as the embankment behind it was dependent on the completion of the tunnel, and the wall was unavoidably built in many detached lengths, it was necessary to increase the width of the base, by reducing the batter of the back of the wall. This wall had advanced very briskly during the summer of 1846, and was within 9 feet of the levels of the rails, with all the lengths joined, excepting the two openings through which the materials were carried from the beach, when, on the 22nd October the coast was visited by a severe gale, with a 17 feet tide, which completely destroyed the central portion of the wall between the two openings, besides damaging the other portions, and sweeping away the beach in front of the centre of the wall. In consequence of this lowering of the beach, it was decided to substitute for the central portion of the wall an open viaduct, consisting of thirteen openings, each 36 feet in clear width, and spanned by ten cast-iron girders, two for each rail, resting on solid ashlar piers, 32 feet in length, 6 feet thick under the impost, and 6 feet 8 inches thick at the footings, with semicircular ends next the sea. The remaining portions of the wall were completed with the limestone ashlar facing, taken from the destroyed length of wall, set in cement, and in many cases backed with brickwork, also set in cement: they were also built more upright, and nearly straight on the face. In order to preserve the foundations of those parts of the wall which remain uninjured by the storm, it was resolved to form a breakwater and terrace in front, by driving a zigzag row of piles, in bays at right angles to each other, and to back these piles with planks, behind which an artificial beach was formed. The parapet of the first length of wall, immediately to the eastward of the headland, was built for a length of 130 yards, from 8 to 11 feet higher than the level of the rails, for carrying one end of a slanting roof, or "lean-to," formed of whole timbers set close together, as a protection against stones and debris falling from the face of the cliff. In spite of the great difficulties encountered during the progress of these walls, arising from the peculiar locality and from the violent action of the sea, the viaduct last constructed proved perfectly satisfactory: it was, however, shown that, in point of expense, it would probably have been as cheap to have pierced a longer tunnel, and had a less extent of seawall, as the contingent expenses incurred in contending with the waves were very great, and were of a nature scarcely to be foreseen and provided for by engineers.

ST. HELEN'S GLASS WORKS.

In the course of a paper on glass read by Mr. Deacon, at the Liverpool Architectural Society, the reader said that the building of the St. Helen's Crown, Sheet, and Plate-glass Works was commenced in April, 1826, and glass was first made there in February, 1827. The firm consisted of six partners, among whom the shares were proportionately divided. The works now belong entirely to Messrs. Pilkington. At the commencement there were about forty or forty-five hands; but they have now in different departments, exclusive of the colliery, between 800 and 900 men in their employment. The exact number is by no means easy to ascertain: there are daily changes, and many join as partners in certain work by the piece, only one name appearing in the wages-book for the whole gang. As nearly as could be ascertained, the actual number is between 870 and 880. They are distributed in various ways: about 560 are such as may be truly called glass-makers, and are sub-divided amongst crown, sheet, and plate-glass, ornamental glass and shades. The rest are employed in the warehouses as assorters, cutters, and packers, as makers of pots, bricks, and other articles of clay; and then comes a long string of trades, carpenters, wheelwrights, sawyers, bricklayers, masons, smiths, mechanics, engine-drivers, carters, and plumbers, all being waited upon by a large number of labourers and assistants of various kinds. In addition, there is the staff, which, without reckoning the proprietors, who take an active part in the business, consists of two general managers, and one who resides on the works, and whose duties are more limited, fifteen clerks, thirteen managers of departments, and twenty-seven working foremen. Then there is a functionary of quite another class—the schoolmaster. Many boys are employed, and working at uncertain hours, often all night, no regular day or night school would receive them as scholars. A school was, therefore, established at the works for the use only of such as are actually employed. Under sixteen years of age the attendance is compulsory, at times arranged each day by the schoolmaster and the several managers and foremen. The number on the school-books, both above and below that age, is 117. The weekly product of the work is about 100 tons of glass, in working which 650 tons of coal are consumed.

Books.

The Principles of Colour applied to Decorative Art. By G. B. Moore, Teacher of Drawing in University College, London. London: Taylor, Walton, & Co. 1851.

The want of established principles for the application of colour, apparent during the late discussion on painting the building for the Great Exhibition, has led to the production of this volume (74 pages), which the author terms "an attempt to investigate the principles on which the works of the middle ages were accomplished." This is the view he takes of early decorations:—

"In the most successful decorated interiors of France, Belgium, and Italy, the application of colour appears to have been on the same principles that guided the great painters of the Venetian and Flemish Schools in their pictorial combinations. In their works, the primary colours, yellow, red, and blue, are seldom employed in large quantities: they are often concentrated, and almost invariably graduated, broken, or varied, by the mixture of the complementary colours: the secondary colours, orange, violet, and green, formed by the mixture of two of the primary colours, were applied in similar graduated quantities, and the greater proportions in their compositions were generally composed of the tertiary hues, formed by the mixture of three primary colours, with one predominating; or the quartiary hues, formed of the three primaries, with two or a secondary colour predominating. These hues are often mis-termed neutrals, a term that properly belongs to the various shades between white and black, in which the three primary colours are blended in proportions that balance or neutralise each individual colour."

He regards the various colours under the following classes and terms:—

- **Primary positive colours.**
  - White.
  - Yellow.—There are no distinct general terms for the delicate tints, those in use being borrowed from objects containing them: lemon-yellow, straw-colour, and primrose.
  - Red.—The delicate tints, pink, carnation, rosy.
  - Blue.
- **Secondary positive colours, composed of two primaries.**
  - Orange, composed of yellow and red.
  - Purple, composed of red and blue.
    - Comprehending:—
    - Crimson, when the red is in great excess.
    - Violet, lilac, where the red and blue are balanced.
  - Green, composed of yellow and blue.
    - Blue-purple where the blue is in excess.
- **Tertiary hues, composed of the three primaries, with one primary predominating**
  - Citrine, where yellow predominates.
    - Buff, in the lighter hues.
    - Tawny, or dun, in the deeper.
  - Russet, where red predominates.
    - Marone.
    - Chocolate.
  - Grey, where blue predominates.
- **Quartiary hues, composed of the primaries, with two primaries or a secondary colour predominating.**
  - Auburn, where orange predominates
    - Brown in the deeper hues.
  - Puce, where purple predominates.
    - Lavender for the lighter hues, where violet predominates, or the red and blue are balanced.
  - Olive, where green predominates.
- **Neutral tints.**
  - Where the three primaries are in proportions to balance or neutralise each other, of which the deepest shade is black.

He maintains that in Nature the use of the positive colours is confined to small parts; and this is his deduction:—

"It appears, that if the principles found in nature, and adopted in the works of the greatest colourists are correct, we should use the tertiary, quartiary, and neutral hues, for the greater quantities, and reserve the primary and secondary positive colours to heighten the effect, or attract attention to the points of interest. As far as I can recall to memory the effect of various edifices, the most successful appear to have been decorated on the above principles; but the decorations of buildings, like pictures, often improve, as well as suffer by the hand of time, and it is difficult to say how far the harmonious mellow effects of the older buildings may not have arisen from the crude positive colours being softened and subdued by age, though we can generally judge if portions have been decorated in brighter tints than the rest. In the Gothic churches in Belgium and France, the greater quantity of the walls were generally left uncoloured, the subdued broken hues of the stone and rich carved woodwork forming a relief to the more positive colour of the glass windows, pictures, and marbles; and where marbles were much used, as at St. Mark's, Venice, the greater proportions were generally of rich deep harmonious hues, and the brighter marbles reserved for the altars, shrines, &c. At St. Peter's and the other basilicas of Rome, the marbles form intermediate hues between the more positive colour of the pictures, mosaics, &c., and the subdued hues of the walls."

Miscellanea.

Society of Antiquaries.—The report on the treasurer's accounts for the last year shows a balance in hand, after payment of the current expenses, of 1,250*l*. The capital stock 7,000*l*. A paper was recently read by Mr. J. H. Parker, on the mediæval architecture of the western part of France, including Angers, Saumur, Fontevrault, &c. The representations were executed by an artist Mr. Parker took with him on a recent expedition. Mr. Rickman shows the intimate connection between our sacred edifices of the Anglo-Norman period and those of the north of France. Mr. Parker thinks the resemblance was not less striking as regards the cathedrals and churches in the whole of the western provinces of France.—The anniversary meeting on the 23rd will be regarded with more than usual interest, as it will celebrate the hundredth year of the charter. Amongst others, twelve members of the British Archæological Association (not fellows of the society), and twelve members of the Archæological Institute, will be invited to the dinner. —The Duke of Northumberland is moving these two bodies and the society into joint action.

The Sappers of the Surveyors.—Your correspondent "J. T. S." in The Builder of the 15th March, has alluded to the true cause of this mischief: it is indeed centralisation which has sapped the occupation of the land surveyors, and we have only to look to the New Metropolitan Buildings Bill for the last effort centralisation has made, in seeking to deprive the magistracy of the power of appointing the district surveyors, and vesting such power entirely in a Government Board. If the profession do not take care not only to repress this but similar attempts to interfere with their occupation, the care of the metropolitan buildings will soon pass from them, as the metropolitan survey has already done, into the hands of the military.—C. E.

REPEWING ST. BOTOLPH'S, BOSTON.—At a recent meeting of the leading inhabitants of Boston, an unanimous resolution was voted to have the parish church repewed, and as an earnest of the force of the resolution come to, the meeting at once subscribed 2,233*l.* towards the object in view. The vicar, the mayor, and other gentlemen, addressed the meeting, and Mr. F. T. White, in course of his speech, remarked, that such works as that in which they were about to engage were deeply interesting, as links of by-gone times. The first record they had of the foundation of their magnificent structure, he found in an interesting statement on the subject of "Boston steeple and church," bearing date 1715, and which was as follows—"The foundation whereof on the Monday after Palm Sunday, Ano. 1309, 3rd Edw. II., was begun by many miners, and continued till Midsummer following,—when they was deeper than the Haven by 5 foot, where they found a bed of stone upon a spring of sand, and that upon a bed of clay whose thickness could not be known. On the Monday next after the feast of St. John the Baptist, was laid the first stone by Dame Margery Tilney, upon which she laid 5*l.* sterling. Sir John Truesdale, then parson of Boston, gave 5*l.* more, and Richard Stevenson, a merchant of Boston gave also 5*l.* which was all the gifts given at that time." He (Mr. White) would for a moment recal their minds to the date of that foundation—1309! Let them reflect upon the vast lapse of time which had since intervened! 500 years—more than half a decade of centuries, had rolled away since that stately pile arose on the banks of the Witham—and they could not look without honour and respect upon the names of those recorded as participating in so glorious a work for the interests of posterity.

BRADFORD MUSIC HALL COMPETITION.—According to the local *Observer*, the whole interior of the selected plan will form an area 153 feet in length by 76 feet in width, the height from the floor to the ceiling being 56 feet. It is computed that the floor of the Hall will seat 1,100 persons, the stalls 600, and the gallery 1,500, making a grand total of 3,200, exclusively of standing room. It is proposed to light the whole interior by a continuation of gas jets, about 2,000 in number, running round the bottom of the massive roof-cornice, after the model of the Philharmonic Hall at Liverpool. The exterior of the Hall is in the Palladian style of architecture. The basement is rusticated with masks on the keystones, and having candelabra in recesses on the principal front. The basement supports colonnades of a Corinthian order, surmounted by entablature and balustrade. The height of the building from the ground to the top of the cornice will be 66 feet. The fronts of the galleries inside, and the columns which support them, will be of iron castings. The whole interior is designed for the introduction of polychromic decoration on a large scale. The second premium (20*l.*) was awarded to Mr. Dobson. We are sorry to hear that the committee have declined exhibiting the plans.

FURNACE FIRE-BARS—RAILWAY SLEEPERS.—A patent has been secured by Messrs. Cochrane and Francis for a new furnace-bar. They are formed of a V or U shape, the hollow being filled in with fire-clay, mixed with sand or ground fire-brick, to prevent shrinking; or fire-bricks of the exact size are cast to fit the opening. Also for a railway sleeper, formed with a basement-plate, with longitudinal ribs and recesses, to admit the feet of the chairs, which are kept in position by a block of wood: the rail is secured to this block by wedges and keys.

STATUE OF CALIFORNIA.—In the New York *Literary World* we find a letter from Mr. Hiram Powers, the sculptor, wherein he says,—"I am now making a statue of 'La Dorado,' or California—an Indian figure crowned with pearls and precious stones. A kirtle surrounds her waist, and falls with a feather fringe down to just above the knees. The kirtle is ornamented with Indian embroidery, with tracings of gold, and her sandals are tied with golden strings. At her side stands an inverted cornucopia, from which is issuing at her feet lumps and grains of native gold, to which she points with her left hand, which holds the divining rod. With her right hand she conceals behind her a cluster of thorns. She stands in an undecided posture—making it doubtful whether she intends to advance or retire—while her expression is mystical. The gold about the figure must be represented, of course, by colour as well as form. She is to be the genius of California. I could execute this statue on a colossal scale in bronze or marble, and it might be placed upon a pedestal out or in-doors. Is she wanted in your city? . . . . It will be eighteen months yet before it is done. The block designated for it is spotless, and that is a matter of great importance to the effect of the work.

DRAINAGE OF KINGSTON, JAMAICA.—The fearful prevalence of cholera which has been scourging various districts in the island of Jamaica, Kingston inclusive, seems to have induced a determination to have this town properly sewered and drained. Mr. William Dredge, who is at present in Kingston, and Mr. Blayney W. Walsh, have been called upon to report to the local Board of Health on the subject, which they have accordingly done. In their report they propose to drain into main sewers with glazed earthenware pipes. The cost of sewerage and drainage they estimate at 9,180*l.* for the former, and 2,754*l.* for the latter. We perfectly agree with the reporters "that experience proves that the direct cost of keeping a town clean is not so great as the amount indirectly paid for allowing it to remain filthy,"—an axiom all the more vitally important in its application to Kingston, that while "in European climes, when epidemics prevail, dirt is dangerous,—in tropical ones it is death."

RAILWAY COMPENSATION.—On the 26th inst. a special jury assembled at Red Lion-square, before Mr. Undersheriff Burchell, to assess the compensation, upon a notice given by Mr. John Glenn, a builder at Islington, to the East and West India Docks and Birmingham Junction Railway Company, under the 68th section of the Lands Clauses Consolidation Act, claiming 1,500*l.* for alleged consequential damage to houses and property adjoining the railway in Cambridge-terrace and Roman-road, Islington. It appeared from the evidence offered by the claimant that the injury complained of consisted of cracks and settlements in his buildings, stated to have been caused by the railway cutting: it also appeared that a sum had previously been paid to Glenn for the purchase of property in the neighbourhood. Upon the examination of the second witness for the company, the jury stopped the case, and, after hearing a reply from Mr. Lush, the claimant's counsel, and the summing up of the learned undersheriff, immediately returned a verdict of "no damage." The result of this is, that the claimant has obtained nothing from the company, and has to pay heavy costs.

THE ECCLESIOLOGICAL SOCIETY.—At meetings of the committee of this society held on February 12 and March 17, the committee examined designs for the Middle School at Hurstpierpoint, for a church school and parsonage in Herefordshire; for a new church at Woodlands, Berks; for a church in Somersetshire; for a church at Bournemouth; and for the proposed church of St. John Baptist, Hobart Town. Mr. Keith exhibited the plate he has in preparation for the cathedral of St. John's, Newfoundland. At the request of the Rev. H. V. Shortland, it was agreed to devote the sum of 10*l.* promised by the society to the restoration of Little Maplestead, to the purpose of providing a screen. A letter was read from Mr. Ralston Cox, informing the committee of the progress of his wooden church, St. John Chrysostom, Delafield; and of the abandonment or alteration of most of the signs of an improved ecclesiological taste in church architecture in the North-western States mentioned in the last annual report of this society.

IRON SMELTING.—Mr. A. Barclay, of Kilmarnock, C.E., has taken out a patent for a peculiar arrangement of blast furnace, stated to effect a saving in fuel, time, labour, and expense. The furnace is provided with three tuyères communicating with the main cold air pipe by vertical branches. Each tuyère has a triple branch, furnished with stop-cocks, one of which opens into a small end of a bell-shaped chamber, forming part of the furnace; while the other two communicate with it at the sides near its junction with the body of the furnace. Each chamber has a charging-place, closed by a double door, for the introduction of fuel while the blast is on. It is recommended, when erecting furnaces on this construction, to have the floor of the blast higher than the charging door of the puddling furnace, to facilitate the operation. There is also a claim to a steam cylindrical blower, which keeps up a regular blast by alternately filling with steam and condensing it, effected by any proper mechanical arrangement of stop-cocks and valves.

THE IRON TRADE.—At the preliminary meeting of South Staffordshire masters, it was found to be impossible to carry out a previous desire to raise prices in the spring, and fears were confessed that even further reductions might have to be submitted to. They still complain of the "immense over production" by the Welsh and Scottish furnaces, and especially dread the incursion of the Scots, although, as yet, the "prices obtained, considering quality and carriage, are not sufficiently reduced to allow of the substitution of Scotch for Staffordshire among our manufacturers." Orders for manufactured goods are said to be extensive in the district,—iron culverts for the metropolitan sewers inclusive. American orders for the raw material are exceedingly limited since the American merchants have ceased to dread an increased tariff on importation.

MEXICAN HOUSES.—Mexican houses are mostly all alike, and I will describe one, once for all. You enter by a large doorway, wide enough to admit a carriage, and find yourself in a large courtyard, or "patio," with the house built round it. Generally, except in large towns, there is only one story; when two, or more, the family commonly live in the first floor, and the ground story is occupied by warehouses, counting-houses, &c. Most houses have, in addition, a court-yard behind, which contains the kitchens and other offices; sometimes there is another yard, or "corral," behind all, which contains the stabling, and is large enough to accommodate a great many animals. All houses are flat-roofed, and paved with a species of plaster over the bricks. This plaster, in a short time, becomes very hard, and being polished with rough stones, until it is as smooth as marble, forms an impervious roof against the rain. Every house is furnished with immense long horizontal pipes or gutters, projecting over the street, and through which all the rain collected on the roof is carried off. During the rainy season, or in a good heavy storm, these pipes are so many cataracts, and it is impossible to walk through the streets without being half-drowned.—*From "A Trip to Mexico."*

SECRETS OF COMPETITION.—Many years ago, a competition was invited for a frieze for one of our public buildings. The committee, which, on this occasion, was composed of gentlemen of more than ordinary taste, found little difficulty in selecting three from the great number of designs submitted to their inspection. The gentleman to whom the third prize was awarded was much disconcerted, for he knew right well that his design was of first-rate quality, it having been a careful transcript of a drawing which the late Mr. Stothard had made him for the occasion. On mentioning his disappointment that he had not succeeded in carrying off the *first*, or, at least, the *second* prize, to the painter, the latter inquired the names of his more successful rivals, when it turned out that, like the three kings of Brentford, they had all been smelling at the same nosegay! The foundation for all the designs had been supplied by Mr. Stothard; but that which had secured the first prize was the first of the three he had executed. "He ought to have been the first," added the old man, "for he came first, and paid the best price."—*Art-Journal.*

ATHENS BY RAIL.—A French engineer has just set out for Athens to construct a railway from the city to Piræus.

INCOMBUSTIBLE THATCH.—Straw saturated with a solution of lime or common whitewash has, it is said, been repeatedly proved to be not only fireproof, but more durable than the ordinary thatch.

TENDERS

For the erection of a vicarage house, stables, &c., at Great Ilford, Essex, for the Hon. and Rev. H. W. Bertie. Mr. Ashpitel, architect :—

Mansfield	£2,299	0	0
Carter and Ellice	2,267	0	0
Holland	2,263	0	0
Lawrence and Son	2,237	0	0
Ashmole	2,237	0	0
Walker and Soper	2,160	0	0
R. and E. Curtis	2,142	0	0
Coleman	2,073	0	0

Quantities supplied.

TO CORRESPONDENTS.

Strength of Plate Glass.—G. E. F. asks for "information as to the transverse strength of glass."

"W. C.," "C. F.," "M. J. S." (evidence has been given us which leads us to consider his strictures incorrect), "Steinitz," "R. P.," "H. R.," Abergavenny (can we see the drawings), "J. H.," "J. C." (illustrations of the rooms in question are published in Munich), "M. J. S.," "A Correspondent," "Baron M.," "W. H.," "R." (we have already commented on the structure alluded to), "G. C.," "W. B.," "H. B.," "G. F. J.," "J. J. M." (the numbers can be obtained in the *parts* for July and August, 1848), "Lover of Fair-play," "S. K.," "C. W. B.," "G. J. F." (a notice of the bridge appeared in our pages, but we are unable to refer), "G. G. L." (we are unable to refer. We do not doubt his statement), "P. and Sons," "J. J.," "Pooh!" "N. D.," "J. R.," "W. M." (is an advertisement), "Illustrations of Mediæval Costumes in England," Collected from MSS. By E. A. Day and J. H. Dines, pt. 1. C. Bosworth, Regent-street. "Chanticleer: a Thanksgiving Story of the Peabody Family." By Cornelius Mathews, 2nd edit. Boston: B. B. Mussey and Co. "An Inquiry into the Operation of Running Streams and Tidal Waters, with a view to determine their Principles of Action, and an Application of these Principles to the Improvement of the River Tyne." By Thomas John Taylor. London: Longman and Co. "A Treatise on a Box of Instruments and the Slide Rule." By Thomas Kentish. 2nd edit. Rolfe and Fletcher. "The Seven Periods of English Architecture, Defined and Illustrated." By Edmund Sharpe, M.A. Bell, Fleet-street.

"Books and Addresses."—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ERRATA.—On page 208, centre column, 16th line from top, for "the iron gates . . . . near Pimlico-gate, to have the enclosure of St. James's-park on one wing," &c., read "the iron gates . . . . near Pimlico-gate have the enclosure, &c.——In the notice on Brussels World Exhibition of Arts, p. 200, *for* "Leopold, Regius," *read* "Leopold Rogier."

ADVERTISEMENTS.

ALTAR and COMMUNION CLOTHS, ECCLESIASTICAL CARPETS, CHURCH DECORATIONS, ROBES, &c.—HARRISON, 21, Brownlow-street, Bedford-row, London.—Decorations from the most simple to the most elaborate designs, at moderate prices.

BROOKS (from Dollond's), OPTICIAN and MATHEMATICAL INSTRUMENT MAKER, respectfully solicits from the public a continuance of their patronage. Having had upwards of twenty years' experience in Dollond's, they may rely that all articles submitted by him are of the most perfect character, and at moderate prices. SPECTACLES, Telescopes, Microscopes, Opera and Race Glasses, Sextants, Quadrants, Compasses, Barometers, Surveying Instruments, Rules, Scales, &c., of every description.
41, Ludgate-street, St. Paul's.

PATENT VULCANIZED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps, &c.—JAMES LYNE HANCOCK, Sole Manufacturer (and Licensee), Goswell-mews, Goswell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the trade generally, to the Vulcanized India-Rubber Tubing, which is now manufactured from 1-8-inch bore and upwards, in lengths from 50 to 100 feet, and of various strengths, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES, LIQUID MANURE, and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressures of any length and size to order.

*** Testimonials may be had on application to the Manufactory.

N.B. VULCANIZED WASHERS and SHEET RUBBER for Steam and Hot Water Pipes, and Packings for Pistons and Gland-Boxes of Steam Engines, cut any size to order

DOLAUNGWYN SLATE QUARRY, near ABERDOVEY, NORTH WALES.—TO CAPITALISTS and OTHERS, seeking investment.—A fine SLATE PROPERTY, in North Wales, now presents itself to the notice of the public. It is only 7 miles distant from a shipping port (Aberdovey), with a good turnpike road the whole way; at which port the slate and slab can be shipped at a moderate freight, either to London or Liverpool. The joints in the quarry are very good, and the metal is bright blue and free from spots; is equal to any in the principality. The extent of the vein is about three-quarters of a mile in length, by an average width of from 20 to 30 yards, and from the favourable position and inclination of the vein, it can be opened and wrought at a comparative small outlay. The fall for refuse is all that can be wished for, and the space ample for centuries. There is water-power sufficient for all purposes of machinery within 250 yards of the Quarry, to which an incline can be made at a trifling expense.

It is proposed to put this property into 4,000 shares, at 5*l.* each. The allotment of shares will take place in the early part of April. A deposit of 1*l.* 10*s.* per share will be required upon allotment, and no call to be made at a less interval than three months, and then only of 10*s.* per share, with the full consent of a majority at a general meeting, to be convened for that purpose. A general meeting will be convened within fourteen days after the allotment of the shares, when trustees and a managing committee will be chosen from amongst the shareholders present. All moneys to be paid into the London and Westminster Bank, Lothbury, London (and for which a banker's receipt will be given), to the credit of the managing committee, to be appointed as stated in the last paragraph. Applications for shares (not less than five), prospectuses, &c., to be made to the secretary, at the offices of the Union Mining Company, 6, Austin-friars.

CHARLES WHEATCROFT, Secretary.

MONEY ON LOAN at £3 per Cent. per Annum.—ARNEWAY'S CHARITY.—NOTICE IS HEREBY GIVEN, that the Trustees of this Charity are enabled to lend out the Trust Moneys to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say within the parishes of St. Margaret and St. John the Evangelist, St. Anne, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the-Fields, St. Mary-le-Strand, and St. Paul, Covent Garden. The amount of each Loan is not to exceed 10*l.*, is to bear interest after the rate of 3*l.* per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of Application, and all necessary information, may be obtained by applying personally, between the hours of Ten and Three o'clock in the day, at the office of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.

By order, EDWARD S. STEPHENSON,
Clerk and Solicitor to the Trustees.

NOTE.—The Trustees meet on the second Wednesday in ever month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

PAPERHANGINGS for the Season, from Original French Designs, commencing at 6*d.* per piece of 12 yards long; Oaks, 7*d.*; Marbles, 9*d.* Flocks, Satins, and Gold Papers equally low. All our new magnificent Spring Patterns, from Paris, now in stock, duty paid, at very low prices; the same exported duty free from the manufactory. Shippers allowed the full drawback on English papers. Building and country orders liberally and promptly executed, by L. MARKS and CO., 2, Great Queen-street, Lincoln's-Inn.

PAPER-HANGINGS at E. T. ARCHER'S Manufactory for English, and Warehouse for English and French Paper-hangings, and all materials connected with the trade. The Panelled Decorations are fitted up on the walls of an extensive range of show-rooms, giving at one view a drawing or dining-room furnished fit for occupation.

LIST OF PRESENT PRICES.

Painted marble, granite, and oak papers	1*d.* per yard.
Superior bed-room papers	1*d.* "
Satin ground papers for bed-rooms drawing and dining rooms	3*d.* "
Flock papers on grounds, and crim on flock on oak	4*d.* "
Bronze drawing-room papers	9*d.* "
Rich gold paper	1*s.* 6*d.* "
Ditto and Flock	2*s.* 0*d.* "

10,000 feet of gilt mouldings always in stock.

E. T. ARCHER, 451, OXFORD-STREET, LONDON.

January, 1, 1850.

PAPER HANGINGS.—R. HORNE, PAPER HANGING MANUFACTURER, 41, Gracechurch-street, City, invites builders and the trade to inspect his extensive stock of NEW DESIGNS in PAPER-HANGINGS, which, by the aid of powerful machinery, he is enabled to offer at the following prices, in stock quantities, for cash only, viz.:—

Stout lining paper		5*d.*
Superior ditto	6*d.* and	7*d.*
Bed-room papers, in great variety	at	5*d.*
An excellent oak paper	at	8*d.*
Sitting-room ditto, on blended grounds	7*d.* to	9*d.*
Hand-made marbles	9*d.* to	1*s.* 6*d.*
Good satin papers	1*s.* 6*d.* to	2*s.* 0*s.*
Flock papers	2*s.* 0*d.* to	2*s.* 6*d.*
Hand-made granites	9*d.* to	1*s.* 0*d.*

34 Pieces.

Every novelty in French and English panelled decoration always on hand; also excellent imitation of fancy woods.

N.B. Patterns sent into the country, by post, showing the style and quality of the above, on receipt of two stamps, and the goods despatched with promptitude on receipt of a remittance to the mount of the order given.

DAMP WALLS.—New PATENT PAINT: a guaranteed remedy, will dry in a few hours, and may be immediately papered over.—G. BELL and CO., steam mills, 2, Wellington-street, Goswell-street.

THE METALLIC PAINT, produced by the PATENT ALKALI COMPANY, has been extensively used for several years on farm buildings, iron bridges, roofs, and railings, shipping, &c., and it is universally admitted that it covers a greater surface than any other pigment, and stands far better on wood, iron, Abesthaw lime, and Roman cement, than the ordinary paints. Fine black, 28*l.* per ton; rich purple brown, 20*l.* per ton.

Company's Offices, 1, New Broad-street, London.

JOHN A. WEST, Secretary.

PATENT WHITE ZINC PAINT.— JOHN WARNER and SONS are prepared to supply this paint to builders, painters, and plumbers, on wholesale terms. It is free from all poisonous qualities; it is unaffected by sea-water, sulphuretted hydrogen, or any of the gases; and preserves its original colour where white lead paint will not.—Prospectuses to be had at J. Warner and Sons', 8, Crescent, Jewin-st., London.

HUBBUCK'S PATENT WHITE ZINC PAINT.—ANNOUNCEMENT.

For MARINE USES, it possesses the following advantages:—It is whiter than any other Paint, and retains this whiteness for years, unaffected by bilge-water, or noxious vapours from cargo. The White Paint in the hold of a ship, after discharging a sugar cargo, is found to be as white as the year before, when newly painted. Under these and other circumstances, when every other paint hitherto known and tried has failed, the "White Zinc Paint" has preserved the fastness of its colour. Moreover, by virtue of its galvanic action on iron, it enters the pores, and forms an amalgam of the two metals, which protects the iron from rust, decay, or incrustation.

For the GENERAL PURPOSES of the decorative painter, the "White Zinc Paint" has been found unparalleled in whiteness, clearness of colour, durability, and beauty of texture. It becomes so hard as to admit of polishing equal to the finest coach panelling.

For SANITARY PURPOSES the "White Zinc Paint" is valuable, not only from its being totally free from every ingredient injurious to health, but from its combining chemical qualities which render it a powerful corrective where contagious disease have prevailed; furniture or buildings painted with it are at once disinfected. Paralysis and Painters' Cholic are avoided by its use, as well as similar results to the occupants of newly painted rooms. Apartments may be immediately occupied, without injury to the health of children or the most delicate constitution. It becomes cheaper than common paint, from its spreading over a much larger surface. 2 cwt. of this paint covers as much as is usually covered by 3 cwt. of white lead. Each cask is stamped with the name "Hubbuck—London,—Patent," as the style of the Manufacturers. A circular with full particulars may be had of the manufacturers, THOMAS HUBBUCK and SON, Colour Works, opposite the London Dock.

PURE PATENT WHITE ZINC PAINT of the VIEILLE MONTAGNE ZINC MINING COMPANY.—This Company having become Proprietors of all rights and patents of the late Patent White Zinc Company in France and Belgium, is prepared to FURNISH, on a large scale, the WHITE OXIDE of ZINC in a PURE STATE, and of a quality which can only be manufactured from the Zinc from their Mines in Belgium. The Patent White Zinc Paint is superior in every respect to white lead paint. It is entirely free from all poisonous influences, and is unaffected by sea-water, sulphuretted hydrogen, or any gases; besides, it preserves its original colour, which white lead paint does not. White zinc paint causes none of those ravages invariably engendered by white lead upon the human frame; neither Painters' Cholic, nor Paralysis, &c. &c., to which dangerous complaints the workmen who manufacture and use it are subject, and to which persons who inhabit newly painted apartments are also liable. A spurious article having been introduced in the market under the name of White Zinc Paint, the Public is cautioned against it, because, when adulterated, it becomes a very inferior paint, instead of a first rate one.—For further particulars and Prospectuses, apply to Mr. H. F. SCHMOLL, general agent for England and Scotland, at the Company's Offices, 12, Manchester-buildings, Westminster-bridge, London.

REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¼ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

FLOORING.—ALFRED ROSLING begs to inform his customers and the trade generally, that he has again very materially REDUCED the PRICES of his DRY FLOOR BOARDS, of which he has in stock an extensive assortment. To purchasers of a quantity of freshly prepared boards A. R. is able to offer a great reduction upon his current prices, to avoid the expense of piling away in the drying sheds. Mouldings in great variety, and prepared in a very superior manner.—Southwark-bridge Wharf, Bankside, October, 1849.

THOMAS ADAMS begs to return his best thanks to his customers for the very liberal share of their favours he has received during the last four years, and also to inform the trade generally, who have not yet purchased of him, that they will find it much to their advantage to do so, as his prices for SEASONED FLOORING and MATCHED BOARDING are LOWER THAN ANY ADVERTISED; that having very extensive drying sheds, he is enabled to keep a very large dry stock; that he makes it his particular study to retain his customers, by executing their orders in the very best manner, and by sending with despatch goods of the quality and lengths they require; also, that he measures his boards after they are prepared.

T. A. has reduced the price of his Mouldings, and has had lithographed two new sheets, containing more than 200 patterns (which he will be happy to forward on receipt of two postage stamps); and he has on hand a stock of each, seasoned and fit for immediate use. Parties who, from want of room, cannot keep a stock of deals on hand, will do well to supply themselves from T. A.'s very extensive stock of cut deals of every description and thickness, which he sells at wholesale prices, and charges the SAWING at LESS than MILL PRICES. Scantling sawn to any size at per load.—Mahogany, cedar, rosewood, wainscot, oak, ash, elm, beech in logs, planks, boards, and veneers; sash sills, wedges, fencing (English and foreign), slating and plasterers' laths,—in fact, everything, in the wood way, that can be required for building or repairs, at equally low prices.

To cash buyers T. A. offers every inducement.—All sawn and prepared goods delivered free of expense within four miles. Great care taken to pack mouldings, &c. going by railway.

N.B. English timber taken in exchange.

BERMONDSEY NEW-ROAD, SOUTHWARK, near the "Bricklayers' Arms," and ten minutes' walk from London-bridge Station.

TO BUILDERS.

ENGLISH TIMBER.—OAK, ASH, or ELM, cut to any lengths, and scantling, at from 2*s.* 4*d.* to 3*s.* per foot, for oak or ash; 1*s.* 2*d.* to 2*s.* 4*d.* for elm. Oak sash sills from 3*d.* per foot, run. Estimates given. A SAW BENCH and TEN CIRCULAR SAWS FOR SALE. Also about 25 cwt. 1¼ and 1¼ square cast steel.—Apply to Mr. MAY, 90, Leadenhall-street.

MUIR'S PATENT PLANING MACHINE.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any size, PLANK, DEALS, and BATTENS, &c., Sawn on the most approved principle, Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills, Gillingham-street, Pimlico.

N.B. Estimates given for Sawing and Planing.

THE GENERAL WOOD-CUTTING COMPANY, TIMBER WHARF, SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, near Waterloo-bridge,

are prepared to supply timber and deals, &c., cut and uncut, to any extent, at the current prices of the day. They keep a large stock of WELL-SEASONED FLOORING and MATCH BOARDS, which, being manufactured by themselves, they offer at the lowest remunerating profit. Their extensive saw-mill will be found convenient to the purchasers of their timber, as it can be immediately cut and prepared to suit any purpose.

The Company beg leave to call the attention of the trade to their NEW MOULDING LIST, the largest ever published, and to state that, in addition to the numerous patterns therein delineated, their machinery enables them to execute every description of mouldings, from drawings, &c., with an accuracy and despatch* which must insure satisfaction.

The moulding list, containing nearly 200 diagrams, with prices attached, may be had at the company's mills, or shall be forwarded on receipt of eight postage stamps (the amount of the postage thereon).

* The company (without previous preparation) manufactured and delivered to the Great Exhibition fifty statute miles of sash bars within ten days after receiving Messrs. Fox, Henderson, and Co.'s order, which these gentlemen have certified, and that the work was executed to their entire satisfaction.

TIMBER PRESERVING COMPANY.— LONDON WORKS and SAW-MILLS, DURRAND'S WHARF, ROTHERHITHE.—This Company, in conjunction with their works for the preservation of timber against dry or wet rot, fire, &c., are prepared to undertake SAWING of every description on moderate terms. Their spacious wharf affords every facility for receiving timber or deals from the docks, for contractors, builders, or others, to be converted and delivered as required.—For prices, &c. apply to the Manager at the Works, or to the Secretary, 50, King William-street, London-bridge.

LIGHTERAGE.—To Saw-Mill Proprietors, Timber, Slate, and Stone Merchants, or others, requiring Lighterage.—The Advertiser having a large number of Barges, is willing to undertake LIGHTERAGE at prices that defy competition.—CHARLES STRUTTON, 34, Commercial-road, Lambeth.

TARPAULINS for COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PIGGOTT, 115, Fore Street, City, Manufacturer, by Appointment to Her Majesty's Honourable Board of Ordnance.

STAINING DEAL to IMITATE ALL KINDS of WOODS. It requires no sizing, and will stand the exposure to the weather. Price 6*s.* per gallon. Varnishes for W. Naylor's Stains may be had at the Factory, 57, James-street, Oxford-street.

TO ARCHITECTS, BUILDERS, &c.

STEPHENS'S LIQUID OAK, MAHOGANY, and SATIN WOOD STAINS, for staining various sorts of inferior woods, so as to give them the appearance and character of the more costly and ornamental kinds. In the BUILDING and DECORATING CHURCHES and CHAPELS, where it is desirable to give the cheaper kind of woods the appearance of antique oak, or to make deal assume the character of oak panelling, whereby the effect of the more costly may be produced by the use of a cheaper material, these stains will be found more effective than any means hitherto employed. For the exposed timbers of the inside of the roofs of churches, by brushing them over with the stain, which operation is very rapidly, and, of course, economically effected, the appearance of an oaken roof will be produced. For colouring the backs of the seats, pews, the fronts of galleries, the pulpit, &c., it is equally advantageous.—Prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street; at the Office of "The Builder," 1, York-street, Covent-garden; at both which places may be had the proper Varnish and Size, with directions for use.